STEEL
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***Next Week*** ... **One World in Metallurgy? ... Who Has the World's Metals? ... Critical Materials—What You Can Do About Them ... National Metal Congress Program**

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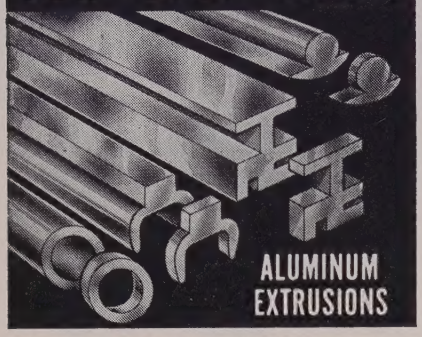


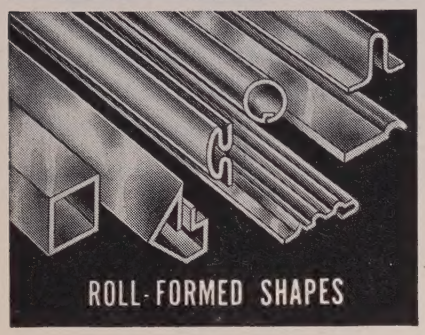


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# Behind the Scenes...

## New Job

The boss man, Editor Irwin Such, just took on a new job. He became president pro tem of the Society of Business Magazine Editors, an organization with more than 110 members throughout the United States. He succeeds John W. McPherrin, former editor of *American Druggist* and now vice president of Crowell-Collier Publishing Co. and publisher of *American Magazine*. Irwin was first vice president of the society which has its headquarters in Washington.

## Progress Note

Walking into the Chicago office of Inland Steel Co. the other day, we were pleasantly surprised to hear soft overtones of soothing music above the clatter of typewriters and business din. Upon inquiry, we learned that Inland is piping in the music from a local FM radio station. It's not a captive audience though: Various office sections put the music question to a vote. Excellent results are reported in worker comfort and productivity. One reason why the music is favored: All commercials are automatically deleted.

## Out of This World

Anticipating the rush for reservations on interplanetary space ships almost any decade now, the Toledo Scales people are pulling away ahead of the competition. They've put out a little card showing how much you'll weigh on various planets.

Perhaps they were spurred to get their foot in the door by noting proceedings of the International Congress of Astronautics at its London meeting this year. Dr. Werner von Braun, designer of the V-2 bomb for the Germans and doubtless a man not given to levity, presented an outline for a three-year trip to Mars.

We can foresee a whale of a business for the scales people when the universe is opened up for scientists and businessmen wanting to get away from their petty down-to-Earth problems. If you plan to take your wife on the Mars expedition, she'll be overjoyed to know that her poundage there will be less than half the amount she admits to on Earth. Of course her space helmet must be figured in; scientists say it's inadvisable to remove them on other planets even for such an important ceremony as determining one's corpulence. This makes us wonder how boxers could make a living in such places.

If you're worried about your wife's tipping the scales near the 150 mark, just think what she'd be on the sun: A two-ton monster — if she could stand the heat.

Want to know what you'll weigh on a visit to other worlds? If the moon is your destination, multiply your present weight by 0.16. On Venus you'll register 0.85 of your normal mark; Mars, 0.38; and Jupiter, 2.64.

## Reference Work

If you come across any sweat marks between pages 121-136 of this issue, it's likely to be from the brow of Associate Editor Vance Bell. He has been working feverishly of late putting together the 16-page compilation "Steel Industry Statistics." A summary and analysis of American Iron & Steel Institute's "Directory of Iron and Steel Works of the United States and Canada" (last published in 1948), it tells where steel, pig iron, coke and rolling mill products are coming from and in what amounts. Figures in this work show clearly the effect of the big demand for durable goods in the postwar era and the trends brought on by defense needs. Reprints will be available.

## Puzzle Corner

Puzzle in last week's issue was really a stickler: Find the puzzle. So concerned were we with problems of our puzzlers that we neglected to give them more food for thought.

Answer to the Sept. 17 problem is 3 seconds. Correct answers came from Ralph Pappenheimer, The Specialty Device Co.; J. H. Bowman, Wheeling Steel Corp.; L. B. Slapleigh, Bethlehem Steel Co.; and C. E. Blass, Talon Inc.

Try this one, sent in by Lt. Comdr. A. R. Simpson. Three racing automobiles are tested on a proving ground. It is known that the speed of Car A is 10 miles per hour more than the speed of Car B, and 10 mph less than that of Car C. Starting at the same time, the three cars cover the entire length of the proving ground. Car B arrives 10 minutes after A; and C finishes 8 minutes and 45 seconds before A. What is the speed of each car and what is the length of the course?

Shrdlu

(Metalworking Outlook—Page 27)

# The Metalworking Outlook

October 1, 1951

## Time Is Now

Today is the day. Oct. 1, 1951, is more than the beginning of the fourth quarter; it's the day when all steel, copper and aluminum goes under CMP; it will probably be the day that future historians will pick as the beginning of full-scale economic mobilization. In this quarter, some of the final blows will be dealt to hammer the economy into an instrument producing many guns and some butter. That instrument, with some modifications, is certain to last for many months, perhaps even years.

## Capital Expenditures Soar

One characteristic of that economic instrument, for the next two years to come at least, will be capital expansion (p. 35). Expenditures on new plant and equipment will probably exceed $24 billion a year in 1951, 1952 and 1953. A sample of what's being planned is Westinghouse Electric Corp.'s $296 million program extending beyond 1953.

## Room for Cutting

Outlays for national defense are now accounting for about 9 per cent of the gross national product. It's still far below the wartime high, when it hit 41.5 per cent. Other government expenditures have fallen from about 12 per cent of GNP in 1949 to less than 9 per cent now. During World War II, other government spending touched a low point of 3.2 per cent in 1945. In that last figure is an indication that non-defense government spending can be cut far more than it has been.

## Word to the Wise

It's wise to make tentative plans on how you're going to insure yourself against war damage. Congress is studying war damage legislation that would set up some sort of government insurance, but a supplemental private insurance program might also fit into the picture. One factor which led toward nationalization of industry in Europe after World War II was the total reliance by most companies on government help to rebuild.

## Not Serious: Steel Black Market

The black market in steel is thus far minor, far less serious than it was in the 1946-1948 period. CMP makes it more difficult for tonnages to slip into opportunists' hands, and buyers aren't as tempted to pay the high prices because they're short of other materials that are even harder to obtain, notably copper and nickel. Testimony turned up at Senate Small Business Committee hearings indicates that the black market in nickel is becoming serious. It's selling for about $4.50 a pound, more than six times the normal market value.

## Troubles in Scrap

The iron and steel scrap drive isn't doing too well. Unless there's improvement soon, watch for a program of World War II proportions

*Production-Engineering News—p. 63* *The Market Outlook—p. 139*

to bring in the material. Scrap piles on hand at consumers' plants averaged 1.2 months on July 1, but rose to only 1.4 months on Sept. 1 despite two months of effort to get more of the iron and steel waste. Ohio valley scrap users are in the worst shape; their inventories average only 10 days. Only bright spot in collections is increasing receipts of auto wrecker scrap which may reach 3.9 million gross tons this year, 30 per cent more than in 1950.

### Changes in CMP?

Steel Products Industry Advisory Committee meets today, Oct. 1. From that meeting may come important decisions on what can be done to help CMP ticket holders who haven't been able to cash in their fourth-quarter steel tickets. The committee will consider the proposal to modify the directive which permits steel mills to accept tonnages first from historical customers. Its advice will also be sought on a directive that would clear the order books from one quarter to another. That means that any CMP tonnages not filled at or near the end of one quarter would be automatically canceled. Both those proposals are being suggested to get the CMP situation in steel straightened out.

### Checklist for Foremen

Are your plant foremen doing their jobs? E. S. Howard of Minnesota Mining & Mfg. Co. says the eight major tasks to be performed by shift foremen are: Work distribution, job instruction, work simplification, human relations, getting new employees off to the right start, directing technical assistants, making necessary reports, receiving instructions.

### Straws in the Wind

Operation of the Air Force manufacturing methods pilot plant at Adrian, Mich., is being turned over to Bohn Aluminum & Brass Corp., Detroit, the wartime operator . . . Salary Stabilization Board has issued a new regulation permitting employers flexibility in making salary adjustments for individual employees . . . Danly Machine Specialties Inc., Chicago, is manufacturing a new line of hydraulic metalworking equipment originally patented by Mueller Engineering Co., Dearborn, Mich.; typical operations are the simultaneous piercing of all holes and the trimming of automotive frame members . . . Atomic Energy Commission has named Union Carbide & Carbon Corp., operator of the Oak Ridge facilities, as operator of the new uranium-235 production plant at Paducah, Ky. . . . Central Military Procurement Information office of the Munitions Board has moved back to its old quarters, room 3D754, Pentagon.

### What Industry Is Doing

New steel facilities will be useless unless we get more pig iron and coke capacity (p. 35) . . . Expansion geography: Heaviest capital expenditures are in Pennsylvania, Texas, Ohio (p. 36) . . . There has been no machine tool giveaway; they were leased (p. 37) . . . Canada's industrial frontier: British Columbia (p. 38) . . . Boron steel passes the test (p. 39) . . . High volume of aircraft and ordnance orders are changing some company-geographical area leaders in arms contracts (p. 41).

# Competitive Capitalism

One of the difficulties encountered in "selling" the idea that capitalism is superior to socialism, communism, Stalinism and some other "isms" is that people in many lands are confused as to what capitalism really is.

In England and on the continent of Europe many people judge the capitalistic system on the basis of what they know about private enterprise in their own localities. In many cases, the examples which come within their view are businesses which are conducted in the environment of cartels or other devices by which keen competition has been circumvented, mediocre management tolerated, mechanization neglected and proper wage remuneration opposed. In other words, they have witnessed companies in which management assumes a negative attitude toward practically everything that contributes to the type of progress which is necessary to achieve the constructive objective of "more goods for more people at lower cost."

This concept is so radically different from that of free enterprise developed under capitalism in the United States that much more attention should be devoted to explaining the difference. If more people in Britain, in Europe and in some other parts of the world could be made to see and understand clearly how our system differs from their concept and how it works, many of our international misunderstandings could be lessened or dissolved.

One feature which makes our brand of capitalism distinctive is competition. In many of our greatest industries—ferrous and nonferrous metal producing, automobile, electrical manufacturing, machinery, petroleum, chemical, etc.—there are numerous companies all engaged in keen competition with their contemporaries not only to win and hold their share of the market but to expand the market. Due to this competition and to other factors, prices, wages, working conditions, productivity and numerous other elements of production, sales and distribution combine to create a result whereby tens of millions of consumers are able to buy and use as commonplace essentials of life articles and goods which under the non-competitive capitalistic systems are "luxuries" to be enjoyed only by the wealthy.

More effort should be made to explain these great advantages of competitive capitalism.

E. C. Shaner

EDITOR-IN-CHIEF

**SHOWS PEAK CAPACITY:** American Iron & Steel Institute's new directory of iron and steelworks, showing facilities as of Jan. 1, 1951, reveals the marked changes that have occurred since the last directory was issued in 1948. Total capacities at the beginning of 1951 were: Pig iron and ferroalloys, 72,553,460 net tons; coke, 66,784,640 net tons; steel

ingots and castings, 104,502,680 net tons; and finished hot-rolled products, 83,699,890 net tons.

All of these capacities represent new peaks in the industry's history. Even more important is the fact that considerable new construction is underway which will bring the totals to substantially higher levels in 1952 and 1953.

Behind the cold statistics are numerous examples of significant progress. For instance in 1926 there were 395 blast furnaces having an average annual capacity of 145,034 tons per stack. On Jan. 1, 1951, there were only 250 furnaces but their average annual capacity was 290,214 tons per furnace. This and other interesting comparisons make the summary of the institute's latest directory interesting reading for producers and consumers alike. —pp. 121-136

* * *

**BASIS FOR OPTIMISM:** If during recent weeks you have noticed considerable emphasis by economists upon the likelihood of a good volume of business over the next year or two, the chances are that this optimism is based upon indications of continued heavy expenditures for new plant and equipment. Right now the experts are calculating that the total earmarked for these purposes will be $24.8 billion in 1951 and perhaps $24 billion a year in 1952 and 1953.

These figures are not to be taken lightly. The expenditure estimated for the current year represents almost one-eighth of all of the business transacted in the United States in that period. The only qualification to be considered is that shortage of materials may either slow or cut down the schedule of new construction. This shortage is complicated by the threat of unbalanced expansion. Some authorities fear that expansion of blast furnace and coke oven facilities will not keep pace with extension of steelmaking capacity. —p. 35

* * *

**EXTEND LIFE 50 YEARS:** Decision of Reserve Mining Co. to proceed immediately with construction of a 2.5-million-ton-per-year beneficiating plant at Beaver Bay, Minn., to produce commercial high-grade iron ore from magnetic taconite brings nearer to reality the dream of utilizing the vast reserves of low grade ore in the Lake Superior regions.

Converting these taconite reserves into commercial substitutes for high grade ore will be an important achievement. One expert estimates that the taconite in one Lake Superior ore range alone represents a potential of 2000 million tons of 63 per cent iron concentrates. This is equivalent to 2500 million tons of the 50 per cent iron lake ores of the past and present and would extend the life of the lake ore region 50 years. —pp. 37, 88

* * *

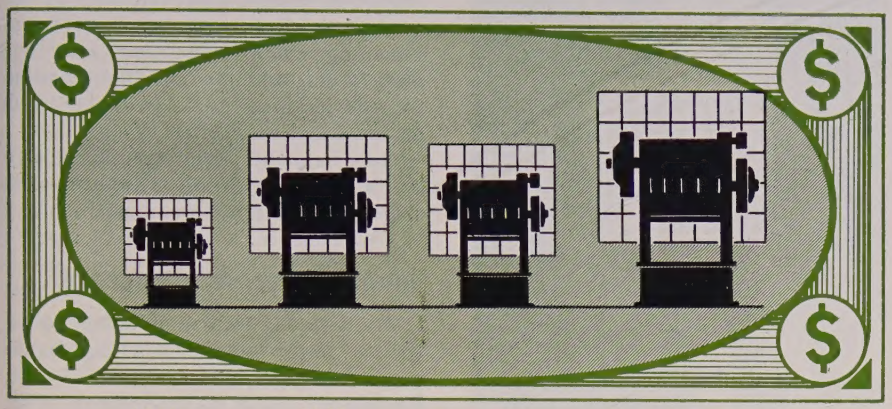
**INGENUITY PAYS WELL:** Persons who are observant of developments in fabricating practice constantly are impressed by evidence of how comparatively simple changes in methods sometimes lead to substantial savings in costs. In a western plant, two men working together were assembling one 8 x 8-foot all-aluminum door every 55 minutes or nine doors per 8-hour shift. Engineers worked out a new method of assembly by which one man turns out one door every 45 minutes or 12 per 8-hour shift.

This appreciable saving in time and cost was accomplished by introducing a power-operated table and installing a metal stitcher which had been rebuilt with an extended throat and other refinements to accommodate this particular job. Possibilities for this kind of application of power and positioning aids to assembly work are almost unlimited in many metalworking shops. —p. 74

* * *

**CAN REDUCE RUST LOSS:** For many years personnel of the metalworking industry has taken it for granted that a certain amount of waste will result from the rusting or corrosion of ferrous raw materials, fabricated parts and finished products. There will continue to be severe losses from these causes but their volume can be reduced to a marked extent by proper use of the increasing number of methods of preventing or controlling rust and corrosion.

Four general types of rust preventives are available—solvent-dispersal coatings, hot dip compounds, rust-inhibiting oils and the volatile, chemical treated papers. The last named is the newest technique. It consists of wrapping or shrouding metal in special paper which has been impregnated with a volatile chemical inhibitor. Under humid conditions a rust inhibiting vapor is given off by the paper which permeates the air of the package and prevents moisture from causing rust. —p. 81



1946 $12,040 Million | 1948 $19,230 Million | 1950 $18,560 Million | 1951 $24,830 Million

# Capital Outlays Buttress Economy

**Peak expenditures for new plant and equipment of $24.8 billion in 1951 and at least $24 billion annually for the next two years assure high economic activity**

ONE BULWARK promises to keep the economy riding high through 1953 at least—no matter what the weaknesses in other economic buttresses, notably consumer and military spending.

Expenditures for new plant and equipment will reach a sensational high of $24.8 billion in 1951 and will continue at or near those levels through 1953. That's virtually assured because most of the contracts have been let, the materials earmarked. No such assurances are present for consumer spending. It has been in the doldrums for months. Although a mild upturn is now showing up, indications are that the superspending by consumers from 1946 through early 1951 is over. Chances are that military spending will increase or at least hold steady through 1953 but those chances are subject to the vagaries of politics and the military situation.

**Rock of Gibraltar**—So, if you can place your confidence in any economic supports over the next two years, you can rely on capital expenditures. Even if the government clamps down tighter on construction, the important expenditures on new equipment will still hold. Thus far, construction curbs have not made much of a dent in capital expenditures. In the fourth quarter of this year, when the present restrictions will be fully felt, the Department of Commerce and the Securities & Exchange Commission estimate that the outlay will be $6.6 billion, well above the $5.2 billion in the first quarter and $6.3 billion in the second, committed when no curbs were in force. The fourth quarter sum is below only that for the third quarter when an estimated $6.8 billion was spent.

The government estimate of $24.8 billion on capital expenditures in 1951 is by far an alltime high (see chart). Even allowing for about a 10 per cent inflation since 1948, it is comfortably above the previous peak, set in that year. The segment of the economy this year, as in all other years, that accounts for most of the capital outlay is manufacturing, but in 1951 it is expanding more than usual. Its $12.8 billion expenditures will account for 51 per cent of total capital improvements, in contrast to 39 per cent in 1948 and similar ratios in other years. The 1951 pattern promises to hold in 1952 and 1953 when at least $24 billion will be spent on new plant and equipment each year. Capital expenditures may drop to about $21 billion in 1954 and to $18 or $19 billion in 1955.

**Big Slice**—Nearly one-eighth of all business transacted in the U.S. this year will result from expansion of industrial facilities. If the programs for the second half of this year are realized, capital outlays will be about two-thirds higher than in the six months before the outbreak of the Korean war. For all quarters of 1951, the larger firms show larger relative increases in capital expenditures than do the smaller ones. Currently, only the largest size group is anticipating an increased rate of fixed investment from the third to the fourth quarter.

Materials shortages are the greatest threat to continued high capital expenditures. They explain why this year's fourth-quarter estimates are below those for the third. But thus far government allocations have been relatively generous for most capital equipment needs and many construction requirements. That policy should continue, for equipment at least, over the next two years.

## Spending Well Balanced?

**Full use of expanded steel facilities won't be possible till we get more pig iron, coke capacity**

THE CAPITAL expenditures program is large, but is it well balanced?

In the case of iron and steel expansion, there's trouble ahead. That was the theme last Thursday when Defense Production Administration officials and Defense Mobilizer Charles E. Wilson met with steel company executives.

**Pig Iron, Coke**—Two serious deficits are indicated in the iron and steel expansion program as it now stands—one in pig iron and the other in coke. Unless much more tonnage of these materials than now promised is made available, it will not be possible to get full production from the new steelmaking and casting facilities now in the works. To prevent such a contretemps some sort of remedial action will have to be taken soon.

The expansion program calls for the following approximate total capacities by the middle or end of 1953: Pig iron and ferromanganese 82 million net tons; steel ingots 118 million net tons; steel castings 3 million net tons; gray iron castings 16.5 million net tons; malleable castings 1.5 million net tons. For complete steel industry statistics as of Jan. 1, 1951, see the special section beginning on p. 121.

**Deficits**—To bring pig iron ferromanganese production in line with the scheduled requirements for ingots and castings, informed authorities hold that blast furnace capacity by the end of 1953 must be in the neighborhood of 88 million net tons instead of the presently scheduled 82 million. As to coke, they figure a

deficit of well over 1 million net tons for 82 million tons of blast furnace capacity, with the deficit rising to 6 million tons for 88 million net tons of pig iron and ferromanganese.

The deficit figures, of course, cannot be computed accurately. For instance, it is estimated that ferrous scrap will be available in 1953 and 1954 at a rate of between 19 and 20 million net tons annually; if scrap collections should be larger, the need for pig iron would be less. Again, output of old blast furnaces can be increased by charging improved raw materials, and by applying technological improvements also by enlargement at time of relining. But, even allowing for these factors, the above estimate of the mid-1953 pig iron deficit is not regarded as being far out of the way. There also are factors of uncertainty in connection with coke. It is possible that coke production may be only around 90 per cent of the rated capacity; on the other hand, it could be 100 per cent. Again, more than 40 per cent of the existing slot-type ovens are more than 25 years old, and how much longer they can work without being replaced is a question. Considering all the circumstances, the coke deficit estimate given above probably is not far off the target.

## Ingot Mold Maker May Expand

Expansion in the iron and steel industry continues to touch off plans for expansion in related industries.

One of the latest moves concerns Vulcan Mold & Iron Co., Latrobe, Pa. It purchased a 30-acre tract north of Riverside, N. J., for location of an ingot mold foundry it is considering.

James M. Underwood, president of Vulcan, noted that expansion of existing steel mills coupled with new construction would tax ingot mold suppliers to service expanded requirements.

Currently, the company is completing a new ingot mold foundry at Lansing, Ill.

## First Fairless Unit: On Time

Despite government restrictions on usage of structural steel, the first unit at U. S. Steel Co.'s Fairless Works being built at Morrisville, Pa., will go into operation on schedule, reports to STEEL would indicate.

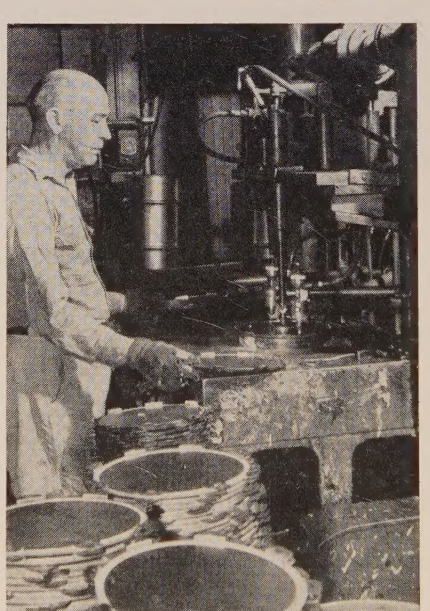
That first unit would be the tin plate mill, and operations would start probably around Jan. 1.

Shortly after that date, the cold-rolled sheet mill would go into operation on schedule. STEEL also learned that no delay is anticipated in blast furnace construction at the Fairless Works.

Modest delays, however, will be experienced in construction of the blooming, slab, billet, bar and hot strip mills, and also in the schedule for the National Tube Co.'s facilities at the Fairless Works.

None of the open hearths likely will go into operation until after the semifinishing mills are ready,

DON'T GO BOOM: These practice-type 3.5 inch bazooka rockets, similar to those used in Korea as anti-tank protection, are being manufactured by Ford Motor Co., at its Highland Park, Mich., plant for U. S. Army Ordnance. Rows of warheads at left and rocket bodies at right represent less than 15 minutes' production output



BAKE UNTIL RUBBER: Covers for 100-pound grease drums get squirted with a rubber compound on the machine at U.S. Steel Products Co.'s Beaumont, Tex., plant. Cover and compound are then oven baked for one hour and a half, the compound becoming a sponge rubber gasket which serves as an air-tight seal between cover and drum when it is filled. John E. Pearce, operating the machine, has lined 6 million or more covers in this way over a period of 12 years

## Interlake Spends to Improve

Another $14 million is being added to its improvement and expansion program as Interlake Iron Corp., Cleveland, flexes its muscles to meet growing demands for pig iron. Interlake's annual rated capacity for producing pig iron will jump 23 per cent, from 1,320,000 net tons at the beginning of 1951 to 1,620,000 net tons, as a result of these new expenditures.

This new commitment raises the total cost of Interlake's overall improvement program to $34 million.

Included in the plans are modernizing and enlarging blast furnaces at Toledo, Chicago, and Erie, relining and improving the second Chicago furnace, enlarging the Chicago ore receiving dock and adding two new storage bridges, constructing an ammonium sulphate plant at Chicago, and constructing a road tar distillation plant at Toledo.

# Geography of Expansion

**Based on necessity certificates, capital expenditures are heaviest in Pennsylvania, Texas**

WHAT areas are getting the bulk of American industry's capital expansion?

Although certificates of necessity granted by the government for fast tax amortization of defense jobs cover only part of the expansion, they are sign posts for the geographical distribution of all new plant and equipment programs because most projects are now defense-related. More certificates of necessity have been issued to Ohio industries as of Aug. 18 than to companies in any other state.

Certificates granted to Pennsylvania projects had the highest dollar valuation.

**Where It Goes**—A geographic analysis of 3328 projects, approved as of Aug. 18, shows that 328 went to Ohio companies on projects aggregating $672,326,000. Pennsylvania firms were awarded 307 certificates on projects totaling $1,125,615,000, while 287

FEB 24 1954

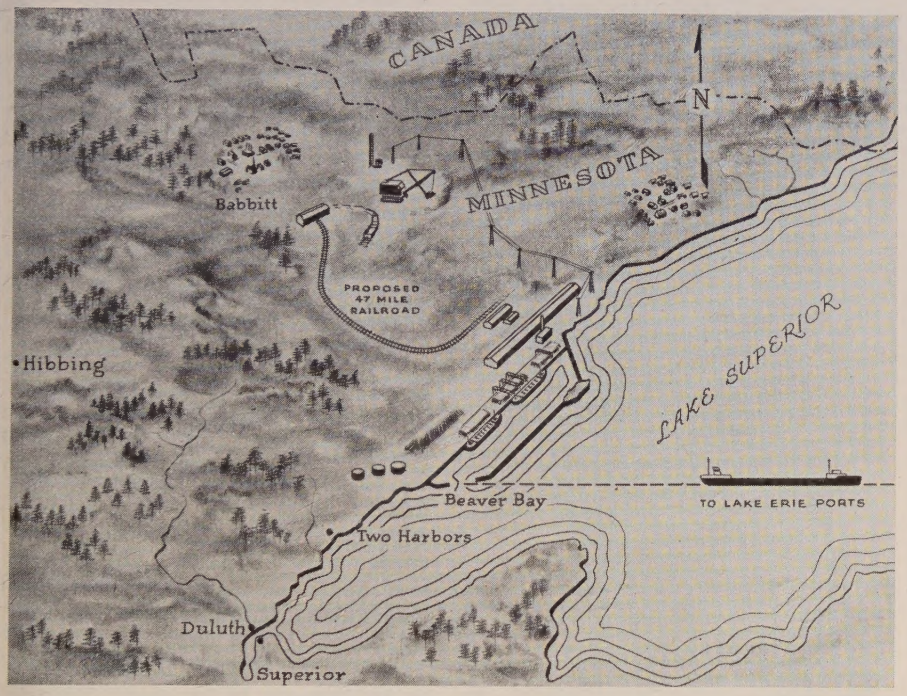
went to California industries on projects totaling $313,847,000.

**Pennsylvania Leads in Dollars** — Pennsylvania's projects had the highest dollar value, and Texas, which received only 140 certificates, was second in dollar value with $825,595,000.

On a sectional basis, the East North Central states (Ohio, Indiana, Illinois, Michigan and Wisconsin) led the country in the number—881—and dollar value—$1,867,755,000—of proposed investment expansion certificates. The Middle Atlantic states (New York, New Jersey and Pennsylvania) were second with 643 certificates on projects totaling $1,600,979,000, while the West South Central states (Arkansas, Louisiana, Oklahoma and Texas) were third, received 205 certificates on projects costing $1,152,032,000.

**The Brakes Are On**—Aug. 18 is taken as the terminal date for geographic analysis of certificates because then the government partially froze defense expansion tax approvals for 60 days. Special projects can still be approved, but only 24 were O.K.'d by the Defense Production Administration from Aug. 18 to Sept. 21. The largest certificate granted in the week ended Sept. 21 was to Aluminum Co. of America which was permitted to write off rapidly 80 per cent of $11 million for construction of aluminum-reduction facilities near Rockdale, Tex.

## New Taconite Plant: Ore Shortage Antidote




EXPANSION in the iron and steel industry and the dwindling of high-grade iron ore reserves are stimulating development of taconite as a source of blast furnace feed.

One of the moves forward is a decision by Reserve Mining Co., Cleveland, to proceed immediately with construction of a 2.5-million-ton-per-year beneficiating plant at Beaver Bay, Minn., to produce commercial quantities of high-grade iron ore from magnetic taconite. Contract for construction of the plant and a railroad has been awarded. The venture is expected to cost more than $75 million.

**Room for Growth**—Provision is being made in the construction program to enlarge the plant as required to a 10-million-ton-a-year facility.

The new plant will be located on the north shore of Lake Superior about 55 miles east of Duluth. A 47-mile railroad will connect the plant with Reserve's mining property at Babbitt, Minn., on the extreme eastern end of the Mesabi range.

Taconite will go through a crushing plant near the pit which is being opened up at Babbitt. The crude ore then will be transported to the Beaver Bay plant where it will be pulverized. The iron mineral will be extracted from the waste material by a magnetic separation process. Then the iron mineral will be rolled into walnut-size pellets and baked into hard balls in a pelletizing furnace. Finished pellets will be shipped to steel plants in the lower lakes region from docks within a new harbor adjacent to the plant at Beaver Bay. The pellets will be about 64 per cent iron. Cost of them will be competitive with other Lake Superior ores.

**Guinea Pig**—A 300,000-ton-per-year plant which Reserve has at Babbitt is being re-equipped. It will go into operation early next year and permit the beneficiating process to be studied further and developed to perfection while construction of the larger plant is under way.

Partners in Reserve Mining Co. are Republic Steel Corp., Armco Steel Corp., and National Steel Corp. Manager of Reserve is Oglebay-Norton & Co., Cleveland.

## Porter Buys Buffalo Steel

More than 70,000-tons-a-year steel capacity was obtained by H. K. Porter Co., Pittsburgh, by purchase of Buffalo Steel Co., Tonawanda, N. Y.

Porter now has a total steel production capacity exceeding 200,000 tons. Last October it bought Connors Steel Co. in Birmingham.

## No Tool Giveaway

**The U. S. is speeding up disposal of reserve machine tools, but on a lease, not free basis**

REPORTS that the government is giving away machine tools are unfounded.

What the government is doing is trying to step up its program to lease tools from the security reserve to defense contractors. That's being done to speed defense production and to free storage areas for other purposes. The latter factor is the reason why particular emphasis is being placed on clearing out the Marietta, Ga., plant so Lockheed Aircraft Corp., which took over the facility last February, can get to work on aircraft production.

**One Per Cent a Month**—Any contractor who leases a machine tool pays a rental of 1 per cent a month of the book value and must return it to the government's security reserve when he's finished with it.

The security reserve of machine tools is in existence because of circumstances just after World War II. Then, the government found itself the owner of thousands of machine tools. It sold some but couldn't dispose of all. Those it couldn't sell and some that it had set aside in case of emergency were picked over, the pickings assigned to the security reserve, with the Defense Department as custodian. Responsibility for the reserve was divided among the armed services; the Air Corps probably has the greatest number of tools, an estimated 10,000 in mid-September at Marietta and at the former Glenn L. Martin plant in Omaha, Nebr.

**Speed-Up**—To clear out the Mari-

etta plant, and ultimately the Omaha facility, the Air Force's Air Materiel Command has set up a new method of selecting withdrawals, but the selections are still leased on the 1 per cent plan as before. Suppliers seeking tools who have been approved by the NPA are studied and classified in five groups, with highest priority contract holders placed in Group 1. Graduated priorities fill the other groups. Representatives of those companies, in order of their grouping, are touring the storage plants to select personally the tools they want.

That method was adopted because no good inventory of the security reserve exists. Even a good inventory wouldn't tell the precise condition of the machines. Personal inspection of the condition is particularly necessary, for some of the equipment is as much as 50 years old.

## Tool Builders Can Get V Loans

In another move to help crack the machine tool bottleneck, General Services Administration will guarantee V loans to machine tool builders for working capital and to finance necessary expansion of their facilities. Machine tool manufacturers need not have government direct contracts to qualify.

Previously, manufacturers who had government pool orders could receive advance payments of up to 30 per cent of the amount of the pool orders if private financing was not available. GSA says that plan proved inadequate in many cases and the necessary increase in production can not be financed solely by such means. But, the 30 per cent advances will still be available to holders of pool orders.

In those cases where NPA considers expansion by machine tool manufacturers will aid defense, GSA will guarantee V loans to finance the construction or acquisition of new facilities. GSA will also assist by installing the necessary equipment in such plants.

## Toolbuilders Speed Shipments

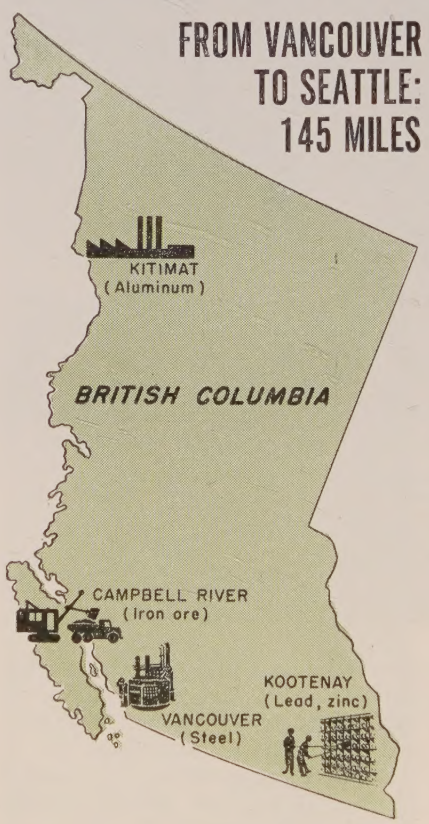
Machine tools were shipped at a faster rate in August, and neared the June peak, National Machine Tool Builders' Association reports. Shipments in August reached 177.3 per cent of the 1945-1947 average, second-highest mark of the year. Foreign orders increased during the month, but total new orders dipped to 488.3 per cent of the average shipments of 1945-1947. Dollar volume of shipments in that period is estimated to average $354 million. To give a more accurate picture of backlog and production, the association has introduced a new index ratio of unfilled orders to demonstrated production rate, rather than to shipments. That ratio for August was 22.8 to 1, as compared with 22.0 to 1 in July. Spurt in August shipments is probably a result of attention by the government to production problems of the tool builders and an increase in subcontracting volume.

# British Columbia Reports

**Using local resources, metals industries of the province are pushing back the frontier**

ONE OF THE newest industrial frontiers in North America is opening in British Columbia, Canada.

As rough and ready as the country in which they live, the metals industries of the province are rolling up their sleeves and clearing the ground for bigger production jobs ahead. Here's how they are getting ready to use the resources close at hand instead of relying on imports from areas more fully developed.




**Steel**—Three associated, yet separate, Vancouver companies, Vancouver Steel Co. Ltd., Vancouver Rolling Mills Ltd., and Pacific Bolt Mfg. Co. Ltd., have established a steel ingot and rolling operation that is helping to supply an ever-expanding demand in the area.

Since there is no basic steel production from iron ore in British Columbia, Vancouver Steel Co. produces electric steel ingots in billet size from steel scrap. These are sent to Vancouver Rolling Mills for reheating and processing into bar stock and structural shapes. About 25 per cent of the rolling mill output goes to Pacific Bolt Mfg. Co. for bolt and nut production. The rolling mill has a present output of 2000 tons monthly, of which 38 to 39 per cent is angles, flats, merchant and bolt rounds: Balance is reinforcing of which 80 per cent is deformed and 20 per cent plain rounds. British Columbia still cannot obtain sufficient shapes and structurals from local sources, so imports are coming in from Belgium, United Kingdom and Japan.

**Iron Ore**—Though they can't export any scrap materials, which are as short in British Columbia as they are in the United States, they can export iron ore. Argonaut Co. Ltd. is expanding mining operations on a new iron ore property near Campbell River and shipments have been made to Japan. Exports to Seattle and other points are planned.

**Lead, Zinc**—Another expenditure on mining operations is the $60 million being spent for increased power at the Trail and Kimberly plants of Consolidated Mining and Smelting Co. of Canada Ltd. in the Kootenay district of British Columbia. This firm is one of the world's largest producers of lead and zinc.

**Aluminum**—Actually pioneering in the Kitimat area on the British Columbia coast near Prince Rupert, Aluminum Co. of Canada Ltd. is investing $500 million in a power plant and reduction plant for producing aluminum. Kitimat, now a tiny Indian village, is expected to grow to a city of 50,000. Bauxite ore is to be brought in by ship. Electric power, 1.5 million horsepower worth, will be supplied by Alcan's powerhouse to be built near Kemano bay.

**Power**—Power supply being a big factor in aluminum production, elaborate plans for harnessing the waters of the Nechako river and its watershed have been made. Dams will stop the eastward flow of the Nechako river and the waters of its tributary lakes. A 10-mile tunnel will be driven in from the Kemano bay area and tap the reservoir at its westward end, providing a 2600-foot head for the power plant. Transmission lines will then carry the power over the 48 miles to Kitimat.

The power plant and reduction plant being planned would permit electric smelting of 1100 million pounds of aluminum per year, enough to have a pronounced effect on the world markets for the metal.

# Boron Meets the Test

**Users of boron steels report on how they work at an SAE meeting in Detroit**

IMPRESSIVE performance results with the boron-treated lean-alloy steels are leading users to believe that those in time will save them from alloy starvation.

Tests in a number of applications were reported by members of the Society of Automotive Engineers' Iron & Steel Technical Committee—Division VIII—Boron Steels, in Detroit last Monday. In most instances the boron-bearing steels were found to be equal to their alloy-heavy cousins. The satisfactory nature of most of these steels is responsible for NPA's Iron & Steel Division Metallurgy and Conservation Chief, E. J. Hergenroether, urging more people to use the boron steels. He indicates that alloy savings of 50-75 per cent may be possible with the new steels (For additional remarks by Mr. Hergenroether see p. 50).

**Up for Discussion**—On the agenda were discussions of high carbon boron steels for springs; medium carbon steels for shafts, steering knuckles and forgings; bolt steels; boron steels for pressure vessels and other applications where heat-treatment is not feasible; carburizing principles; high hardenability steels for gears; medium hardenability steel; and low-alloy carburizing steels.

Also discussed were the specifications of eight boron steels which may be adopted as Tentative Standard grades. These are: 40B37, 80B37 and 14B35 (all for bolt-making), 50B50, 50B60 and 81B40, 43BV12 (already recognized as standard for aircraft applications) and 43BV14. Following steels are being considered for hardenability bands, action on approved ones expected to be taken within about a month: 94B17, 94B20, 14B35, 14B50 and 86B45.

**They Like It**—Two bolt men reported that 40B37 modified is admirably suited to their needs. R. R. Leo of American Steel & Wire Co. said this steel is "one of the nicest bolt wires I've seen." H. L. Hopkins of National Screw & Mfg. Co. said that in up to ½-inch sizes this steel produces 100 per cent good bolts. For hot-wound springs E. T. Bittner of American Steel Foundries said they had found no difference in performance between boron and conventional steels. Much the same report was made by R. H. Lundquist of Minneapolis-Moline Power Implement Co. on forged tractor axles of 81B50. "In our opinion excellent service results from the axles produced can be expected," he said.

Interesting results in carburizing were reported in similar tests conducted independently by W. E. Jominy, Chrysler Corp., and R. F. Thomson, General Motors Research Laboratories. Both said that when carbon is 0.90 the boron steels showed greater hardenability than the non-boron-bearing steels, and Mr. Jominy reported a good increase in hardenability continues when steels are over 0.90 carbon. Tests were made with steels of the same heat, boron being added to half of the steel.

**Yes and No**—H. J. Bates of Fairfield Mfg. Co. reported on a comparison of 80B20 and 8625H and 8620H in gears and pinions. With the boron steel, satisfactory case and core hardness can be obtained, distortion of spiral bevel teeth is within satisfactory limits, but dimensional change in bore is greater than normal and change in manufacturing practice will be required. For a spiral bevel gear for heavy-duty trucks 80B20 was found by Mr. Bates not to meet the customer's "file hard" specification, and would not in his opinion be satisfactory for this use. Pinions made of 94B17 were heat-treatable to satisfactory surface, core and shank hardness without excessive distortion.

E. F. Bittner of Borg-Warner Corp.'s Detroit Gear Division, also comparing 80B20 with 8620H in gear applications, said the gear teeth up to 8 pitch in the boron steel harden out fairly well, but bearing surfaces backed up by massive sections do not. As tested, 80B20 is not equivalent to 8620H in all applications, he stated, but indicated that further tests will be made, changing heat-treatment practice, to learn whether the deficiency can be overcome or reduced. Comparison of 80B40 with 8645 in the main shaft of an automatic transmission showed that the response to induction hardening was about the same, effect of tempering was also about the same, and results of torsion fatigue tests with the boron steel compare favorably.

## 'Steel Serves Nation'

"Steel Serves the Nation" is the title of a 227-page book just published to commemorate U. S. Steel Corp.'s 50 years in business.

The book presents a summary of the principal achievements and services of U. S. Steel since its formation in 1901. That history, plus a statistical analysis of how steel ingot production has increased since formation of the corporation, gives graphic illustration of how America has "passed . . . from the Iron Age to Steel . . ."

## Harbison-Walker Adds Capacity

Moving to enter a wider field in production of basic refractories and later of silica refractories, Harbison-Walker Refractories Co., Pittsburgh, completed negotiations to acquire the Warm Springs, Calif., plant of La-Clede Christy Co., Chicago. The California plant has been making tank blocks and specialties for the glass industry.

## Blast Furnace Output Declines

Blast furnace production declined slightly in August but was sufficiently high to be the third best monthly outturn this year.

August output totaled 6,062,753 net tons, the American Iron & Steel Institute reports. The August performance was exceeded by that in May and July.

To turn out the August tonnage, blast furnaces operated at 98.5 per cent of capacity.

The August blast furnace production comprised 6,004,641 net tons of pig iron and 58,112 net tons of ferromanganese and spiegel.

Total blast furnace output in the first eight months of this year was 10 per cent ahead of that in the comparable period of last year. Additional data and comparisons—in net tons—are in this table:

| | Pig Iron | Ferromanganese and Spiegel | Total Blast Furnace Output |
|---|---|---|---|
| 1951 | | | |
| July ..... | 6,009,717 | 60,037 | 6,069,754 |
| August ..... | 6,004,641 | 58,112 | 6,062,753 |
| 8 mos. ..... | 46,772,493 | 484,297 | 47,256,790 |
| 1950 | | | |
| August ..... | 5,724,577 | 45,786 | 5,770,363 |
| 8 mos. ..... | 42,350,758 | 431,989 | 42,787,747 |

## Another Record Year?

The steel castings industry now is producing at a rate rapidly approaching the all time high of 1944. That was reported to the annual meeting in Hot Springs, Va., of Steel Founders' Society of America, by F. Kermit Donaldson, executive vice president of the society.

The country's 250 steel foundries are producing at a rate in excess of 2,200,000 tons yearly, according to Bureau of Census figures, which is more than 150 per cent above 1950 when 1,461,667 tons were shipped. The all time high of 2,445,421 tons were shipped in 1944. Major problem facing foundries is shortage of vital alloying elements.

PIECEMEAL PRODUCTION: One of 90 West Coast manufacturers who wanted to farm out subcontracts at the Military Business Opportunity Display in Inglewood, Calif., a representative of Consolidated Vultee Aircraft Corp., San Diego, Calif., adds another subcontractor to those working on parts for the B-36 intercontinental bomber. P. V. Gaughen (left), subcontracting supervisor of Convair, enlists J. J. Brown (center), president of Western Stamping Inc., Los Angeles, to turn out magnesium aileron quadrants. George Byrnes (right), chief of the U. S. Air Force Small Business Office, Western Air Procurement District, Los Angeles, looks on

## Subcontractors Become VIP's In Defense Program

SUBCONTRACTS number as many as 1500 on some prime defense contracts. That's why prime contractors are vitally interested in finding qualified sources for subassembly manufacture. Result: Subcontractors become Very Important People.

For example, Texas Engineering & Mfg. Co. Inc., Dallas, began a cataloging and classifying system which assures would-be subcontractors of every opportunity to bid on current work and future jobs Temco may put out. Some of the catagories in which Temco has sorted their 543 registrants are: Castings, crates and boxes, forgings, machine shop work, and welding.

**Never Lost**—Among the subcontractors which have been "found" is Hudson Motor Car Co., Detroit. Hudson will manufacture forward fuselage sections of Boeing Airplane Co.'s B-47 Stratojet. Though exact figures are not revealed, the value of the contract is said to run into the millions.

Evans Products Co., Plymouth, Mich., also has a subcontract to manufacture parts for Boeing. This is one of Evans Products' seven new prime and three subcontracts on defense work which total $10 million. Other subcontracts are for master and articulated rods for the 3350-30W Wright aircraft engine and parts for the General Electric jet engine Packard is building.

**Sub-Subs**—A subcontract to manufacture and assemble complete fuselage aft sections for Republic Aviation Corp.'s F-84 Thunderjet fighter was obtained by Kaiser Metal Products Inc., Oakland, Calif. Officials of Kaiser Metal Products state that 20 to 25 per cent of the precision machine work for this contract will be subcontracted to other industries in the area of the company's Bristol, Pa., plant, where the work will be done.

Prime and subcontracts totaling $2,363,510 for light and medium tank parts have been awarded to Mechanics Universal Joint Division, Memphis, Tenn., plant of Borg-Warner Corp., Chicago.

Other contracts awarded by the government, in excess of $250,000, follow in the table below.

| Product | Contractor |
|---|---|
| Mountings, Cable Assemblies | Kings Electronics Co., Tuckahoe, N. Y. |
| Radio Sets | Emerson Radio & Phonograph Corp., New York |
| | Utility Electronics Corp., Newark, N. J. |
| | Raytheon Mfg. Co., Waltham, Mass. |
| Connectors | Arey Machine Co., Hillside, N. J. |
| Capacitors | Cornell-Dubilier Electric Corp., Plainfield, N. J. |
| Radiac Detector Chargers | Kelley-Koett Instrument Co., Cincinnati |
| Teletypewriter Sets | Ralph C. Coxhead Corp., Newark, N. J. |
| Cupola Assemblies | DeMattia Machine & Tool Co., Clifton, N. J. |
| Door Assemblies | Rocklin Mfg. Co., Sioux City, Iowa |
| Truck Tractors | White Motor Co., Cleveland |
| U. S. Navy Utility Loader Cars | Evans Products Co., Plymouth, Mich. |
| Bailey Bridge | Ceco Steel Products Corp., Chicago |
| | Decatur Iron & Steel Co., Decatur, Ala. |
| | Marinette Marine Corp., Marinette, Wis. |
| | Steelcraft Mfg. Co., Rossmoyne, O. |
| Tank Automotive Spare Parts | Chrysler Corp., Fargo Division, Detroit |
| Repair Parts for Diesel Engines | Fairbanks, Morse & Co., New York |
| Spare Parts and Magnetos | Scintilla Magneto Division, Bendix Aviation Corp., Sidney, N.Y. |
| Components, Type N-1 Compass System | Kearfott Co. Inc., Little Falls, N. J. |
| Aircraft Spart Parts (2 contracts) | North American Aviation Inc., Columbus, O. |
| Aircraft Spare Parts | Canadian Commercial Corp., Montreal, Canada |
| | Lockheed Aircraft Corp., Burbank, Calif. |
| | Douglas Aircraft Co. Inc., Santa Monica, Calif. |
| Turbosuperchargers | Hotpoint Inc., Chicago |
| Fuze E24 | Barley-Earhart Corp., Portland, Mich. |
| | Lionel Co., New York |
| Fuze M501 | Eastman Kodak Co., Rochester, N. Y. |
| Fuze M84 | Precision Castings Co. Inc., Fayetteville, N. Y. |
| Motor Fin-Shell | Precision Castings Co. Inc., Fayetteville, N. Y. |
| Cartridge Case | Revere Copper and Brass Inc., Rome, N. Y. |
| Boosters | Sargent & Co., New Haven, Conn. |
| Shackles, Spacers, and Adapters | Graybar Electric Co. Inc., New York |
| I. D. Rings | Graybar Electric Co. Inc., New York |

## Aircraft Parts Maker Expands

Increase in the nation's air power is bringing additional expansion in the metalworking industry.

The American Welding & Mfg. Co., Warren, O., for instance, announced a plant and equipment addition program that will cost more than $5 million. This expansion, says William J. Sampson Jr., president, will permit American Welding to increase substantially its production of urgently needed jet and reciprocating aircraft engine parts.

Only a few days ago, the company's already sizable backlog of this type of defense work received another boost by receipt of more than $3 million in new orders for such items as coated nozzle boxes, turbine casings, exhaust cones and many stainless steel and titanium welded ring applications.

Purchase of new equipment for the expanded manufacturing facilities of the company will be assisted to the extent of $4,160,000 under a government facilities contract, through which the government will pay for equipment and retain title to it. The

new equipment will include boring mills, furnaces, welding equipment, expanders and drill presses.

A plant addition of about 20,000 square feet, complete with all new facilities, should be in operation soon after Jan. 1. Other additions of plant space will be acquired either through new construction or leasing of existing space. The company's plant now has about 170,000 square feet.

## Where the Arms Orders Go

Many new company names and geographical areas are showing up near the top of the government contract distribution list, replacing the leaders of World War II.

Predominance of orders for aircraft and ordnance are the reason, says the National Industrial Conference Board, which surveyed defense contract allocations. Shipbuilding traditionally gets a high percentage of defense dollars but currently gets less than 2 per cent. That's because the moth-ball fleet is taking care of most immediate shipping needs.

Nearly a third of all orders for military supplies and equipment have gone to two states—New York and California. Three quarters of all prime contracts have gone to the top ten. They include: Michigan, Ohio, Indiana, Connecticut, Illinois, New Jersey, Pennsylvania and Massachusetts.

In company distribution, General Motors still tops the list with prime contracts of over $3.5 billion, nearly twice the percentage share of war orders it had during the last war. Ford Motor Co. follows GM in ranking with orders totaling $1 billion. Boeing Aircraft has stepped up to third place, and Curtiss-Wright moved downward to fourth. About one of three companies on the current list of the 50 biggest government contractors manufacture aircraft. The comparable 1940-1944 ratio was less than one in four.

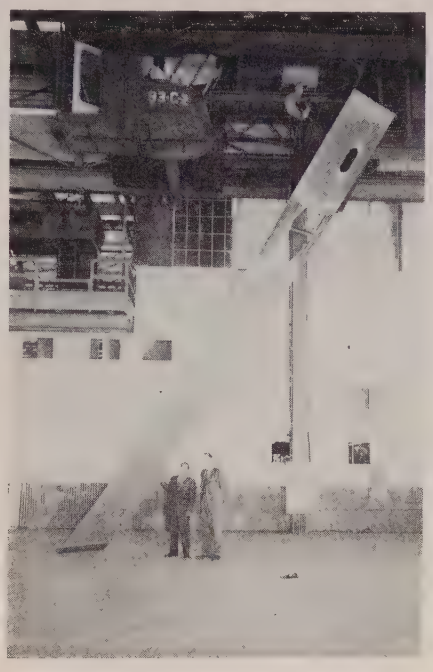
## Lockheed Tools for Big Job

A new technique in air transport design is a one-piece, 32-foot-long wing section for Super Constellations (see the photo).

Lockheed Aircraft Corp., Burbank, Calif., which did six years of research on the project, says the piece of wing is the largest ever fabricated. Cut from a solid slab of metal, it will replace some 1500 individual parts and 5000 rivets. The object of the one-piece construction is to make planes stronger without adding weight, to meet new aircraft speed and altitude requirements.

New tooling will be installed at Lockheed facilities to turn out the wing piece by revised assembly methods. Soon it can be mass-produced on the company's $400,000 Giddings & Lewis mill (STEEL, Sept. 24, p. 98). Cost of the first piece is an estimated $7000. Super Constellation wings require six long panels.

Integral stiffening is the key to construction of the wing piece. Formerly wing sections were built of a framework of small, riveted pieces covered with a thin metal skin. The new method is to make such sections by cutting channels down the length of 1¾-inch thick slabs, leaving standing ribs almost 3/16-inch thick as stiffeners.



32-FOOT WING SECTION
*. . . replaces 1500 parts*

## Warren Pipe & Foundry Sold

Controlling interest in the Warren Pipe & Foundry Corp., New York, was acquired by Solomon E. Shahmoon, a member of the New York Stock Exchange. The company has plants at Phillipsburg, N. J., and Everett, Mass., and an iron mine in Morris county, N. J. Modernization of the Phillipsburg plant, which produces pit-cast pipe, is under discussion.

## Packagers Ready Exhibit

The protective packaging and allied handling industries exhibit their products Oct. 2-4 at Cleveland's Public Auditorium. The event is the annual Industrial Packaging and Materials Handling Exposition, sponsored this year by the mechanical engineering department of Case Institute of Technology, Cleveland.

# CHECKLIST ON CONTROLS

GOVERNMENT control orders are digested or listed each week in this "Checklist on Controls." For complete copies of NPA orders, write to NPA Distribution Section, First Basement, New GAO Bldg., Washington 25. For copies of OPS orders, contact nearest OPS district or regional office. For copies of OPS news releases, write David S. Phillips, director, OPS Administrative Services Division, Temporary E Bldg., Washington 25.

### Materials Orders

TIN—Amendment of Sept. 8, 1951, of NPA Order M-8 extends current limitations on use of pig tin to succeeding calendar quarters.

MINING MRO—Amendment of Sept. 21, 1951, of NPA Order M-78 makes three administrative corrections in this order covering maintenance, repair and operating supplies and capital additions for the mining industry.

### NPA Regulation

CHEMICAL PRIORITIES—Direction 3 to NPA Regulation 2 restricts use of defense ratings for purchase of chemicals to the Department of Defense and the Atomic Energy Commission on and after Sept. 25, 1951. All other users of chemicals must buy them through normal market procedure without assistance of ratings.

### NPA Delegation

CONSTRUCTION — Amendment of Sept. 25, 1951, of NPA Delegation 14 clarifies the scope of authority granted to the secretaries of the interior and of the Army in carrying out approved construction programs.

### Price Regulation

MACHINERY—Amendment 26 to Ceiling Price Regulation 22 and Amendment 14 to Ceiling Price Regulation 30 permit certain manufacturers to apply for a substitute method for figuring material cost increases. Both amendments were effective Sept. 22, 1951.

## OPS Grants Relief for New Firms

New manufacturers who cannot determine ceiling prices under the machinery regulation, CPR 30, because they were not in business before Jan. 1, 1951, may now apply to OPS for approval of proposed ceilings or of a price determining method.

Application should be made on OPS public form No. 90 or 91 and sent by registered mail to OPS in Washington. If no action is taken by OPS within 30 days after receipt of application, the proposed ceilings will be considered approved. Prior to OPS approval, a seller may quote or charge the proposed ceilings but may not accept payment for more than 75 per cent of the ceiling price until after approval has been given.

# Windows of Washington

By E. C. KREUTZBERG *Washington Editor*

**Metallurgists get Washington welcome from ECA and ASM officials. Complaints are reaching the White House over delays in setting up Small Defense Plants Corp.**

IF THE FOREIGN delegates to the World Metallurgical Congress had an advance impression that America is the land of plenty, they probably weren't unduly shocked at being served a fine roast beef dinner with trimmings when they visited Washington.

On the occasion the two sponsoring groups—American Society for Metals, which is conducting the congress and was host at the dinner, and Economic Cooperation Administration, which is paying the expenses of the foreign visitors—welcomed the first 180 of the delegates to enter the country. The remaining 220 who accepted invitations will receive their welcomes somewhere along the industrial route that was laid out. The itinerary will include major automobile, steelmaking and fabricating plants in the United States, and such outstanding research centers as Massachusetts Institute of Technology and Harvard, Yale and Princeton Universities.

**Welcome Words**—At the Washington party welcoming speeches were by Dr. Zay Jeffries, director general of the World Metallurgical Congress; Walter E. Jominy, president of American Society for Metals; Dr. Edward U. Condon, resigning director of the National Bureau of Standards; and Dr. Oliver S. Buckley, board chairman of Bell Telephone Laboratories and chairman of the Science Advisory Board, Office of Defense Mobilization.

Responses were made by Raghunath G. Bhatawadekar, chief metallurgist of India's Ministry of Railway, and Pierre Van der Rest, general manager, Belgian Blast Furnace & Steel Works Association, and head of the Belgian representatives of the Organization for European Economic Co-operation.

## Prodding the President . . .

Loud complaints from Congress and other sources are reaching President Truman over the delay in creating the new Small Defense Plants Corp. Such an agency—to function much along the lines of the Smaller War Plants Corp. of World War II—was provided for in the Defense Production Act Amendments bill signed by the President on July 31. Sen. Andrew Schoeppel (R., Kans.) terms the delay "prime and concrete evidence of do-nothing on the part of the President and of a fiddling White House." Explanation of the delay was requested in a telegram sent to the White House by an influential group of business leaders.

## Blow Ye Winds . . .

Designers of electrical generating equipment may soon be faced with the need for developing a new type of unit—a wind-driven generator. H. R. 4286, now under study by the House Interior and Insular Affairs Committee, would authorize the Interior Department to erect a small experimental pilot plant with capacity of about 7500 kilowatts. Interior officials believe that information obtained from experimental wind-driven machines in the United States and Europe will keep the entire cost within an appropriation of $2.5 million to $3 million.

Because wind does not blow with constant intensity, the generators would be connected with electric power grid systems to which hydroelectric or fuel-electric generating plants are also interconnected. Present thinking is in terms of small-capacity units at scattered windy locations rather than single large plants.

The wind-power project is supported enthusiastically by legislators from the semi-arid western states where water conservation is a big problem.

## Explanation for Toolbuilders . . .

Machine tool manufacturers will have available shortly an instruction sheet to assist them in establishing selling prices to meet approval by the Office of Price Stabilization. Specifically, the instructions tell how to fill out Form 8 pursuant to the provisions of CPR 30, Supplementary Regulation 2, Revision 1.

WATCH OUT FOR AIRPLANES: Standard off-the-highway equipment, like this Caterpillar D7 Tractor pulling a LeTourneau Carryall and diesel motor grader in the background, is being drafted for military construction work in Korea. Air Force engineers move as much as 45,000 cubic yards of dirt for each airstrip they construct. Occasionally an incoming airplane knocks out a piece of equipment still finishing the work on the edge of the landing strip

# Who's Who in the Defense Organization

IN THIS the third edition of STEEL's *Who's Who in the Defense Organization* appears an up-to-date directory of key defense contact men. Other directories have appeared Feb. 26 and April 23, 1951. In the Sept. 10 issue appeared a directory of personnel in NPA's Industrial & Agricultural Equipment Bureau; it is not included in this directory.

## OFFICE OF DEFENSE MOBILIZATION

Executive Office Bldg. ....EXecutive 3300

**Director:** Charles E. Wilson, Ext. 2101, Room 102.

**Assistant to Director, for Production:** Clay P. Bedford, Ext. 2116, Room 105½.

**Assistant to Director, for Manpower:** Arthur S. Flemming, Ext. 2223, Room 187.

**Assistant to Director, for Materials:** David D. Irwin, Ext. 2057, Room 105½.

**Information Officers:** Andrew H. Berding, Ext. 471, Room 174; Scott Hershey, Ext. 494, Room 174½; Stanley Baitz, Ext. 2201, Room 88.

## DEFENSE PRODUCTION ADMINISTRATION

New GAO Bldg. STerling 5200

**Administrator:** Manly Fleischmann, Ext. 4461 Room 3R2.

**Acting Deputy Administrator, for Foreign Coordination:** Frederick Winant, Ext. 5333, Room 4G1.

**Assistant Administrator, for Labor:** Joseph Keenan, Ext. 4471, Room 4A4.

**Deputy Administrator, and Chairman Aircraft Production Board:** Harold R. Boyer, Ext. 5937, Room 4A5.

**Deputy Administrator, for Program and Requirements:** Ralph S. Trigg, Ext. 5316, Room 4G7.

**Deputy Administrator, for Procurement & Production, and Chairman Production Executive Committee:** Clay P. Bedford, EXecutive 3300, Ext. 2116, Room 105½ Executive Office Building.

**Assistant Administrator, to Coordinate National Defense Mobilization Committees:** Eugene F. Bertrand, Ext. 3151, Room 4B6.

**Director, Conservation Division:** Howard Coonley, Ext. 3401, Room 4F1.

**Acting Deputy Administrator, for Resources Expansion:** Byron D. Woodside, Ext. 3919, Room 4L16.

**Electronics Production Board, Chairman:** Edmund T. Morris, Ext. 3828, Room 4B6.

**Critical Areas Committee, Chairman:** Ralph R. Kaul, Ext. 3738, Room 4A5.

**Director of Information:** Edward K. Moss, Ext. 4466, Room 3N1.

**Deputy Director of Information:** Albert J. Lubin, Ext. 4464, Room 3N1.

## NATIONAL PRODUCTION AUTHORITY

New GAO Building (unless otherwise noted) STerling 5200

**Administrator:** Manly Fleischmann, Ext. 4461, Room 3R2.

**Deputy Administrator:** Henry H. Fowler, Ext, 4476, Room 3P2.

**General Counsel:** John Alexander, Ext. 4301, Room 3Y14.

**Director of Compliance:** John Peckham, Ext. 4393, Room 3R15.

### NPA Metals & Minerals Bureau

**Assistant NPA Administrator for Metals & Minerals:** Norman W. Foy, Ext. 3351, Room 2C1.

**Deputy Assistant Administrator:** S. B. Coolidge Jr., Ext. 3351, Room 2C1.

**Administrative Officer:** Burton M. Graham, Ext. 5656, Room 2A4.

**Information Officer:** Louis H. Gerteis, Ext. 4443, Room 4FL.

### NPA Aluminum & Magnesium Division, Room 2N1.

**Acting Director:** Timothy A. Lynch, Ext. 5631.

**Assistant to Director:** Herbert L. Cullen, Ext. 3971.

**Requirements & Distribution Branch Chief:** Connor B. Batman, Ext. 3778.

**Program & Statistics Branch Chief:** S. W. Blumenreich, Ext. 3597.

**Magnesium & Titanium Branch Chief:** Perry D. Helser, Ext. 5520.

**Facilities & Construction Branch Chief:** Henry M. Scott, Ext. 3610. Assistants: Bailey P. Byars and J. K. Thompson, Ext. 3610.

**Pig & Ingot Section Chief:** Conrad Briel, Ext. 4449. Metallurgical Uses of Aluminum: John C. West, Ext. 4844.

**Warehouse Section Chief:** Theodore E. Boeger, Ext. 4737.

**Sheet Section Chief:** Robert T. Farrel, Ext. 3066.

**Castings Section Chief:** Lloyd A. Mapes, Ext. 4718.

**Army Requirements Section Chief:** Augustus Martin, Ext. 5550.

**Navy Requirements Section Chief:** E. W. Digges LaTouche, Ext. 5036.

**Air Force Requirements Section Chief:** George F. Mahoney, Ext. 5036.

**Non-Military Government Requirements Section Chief:** Robert E. Heffernan, Ext. 3066.

**Extrusion Section Chief:** Edgar F. Gore, Ext. 5036.

**Commodity Industry Analysts:** William E. Fitch, Ext. 5603, Thomas A. Ritchie, Ext. 5549.

**Consultant:** Jacob B. Neiman, Ext. 5631.

### NPA Copper Division, Room 2H13

**Director:** F. H. Hayes, Ext. 3318.

**Deputy Director:** Joseph W. Mullally, Ext. 3275.

**Wire Mill Branch Chief:** E. S. Rising, Ext. 5924.

**Foundry Branch Acting Chief:** Lt. Cdr. William A. Meissner Jr., Ext. 3376. **Acting Assistant Chief:** Julian A. Porter, Ext. 3376.

**Conservation & Technical Section Chief:** Harold B. Gardner, Ext. 5429.

**Allocation & Records Section Chief:** R. Barndell, Ext. 3970.

**Program Section Chief:** Dennis F. O'Connor, Ext. 5469.

**Facilities Section Chief:** Walter Clark, Ext. 5469.

**Assistant to Director:** Lenox C. Chew, Ext. 3943; Paul B. Andrews, Ext. 4920; Lionel T. Bonner, Ext. 4607; William F. Cox, Ext. 3944; Frank Spitale, Ext. 4924; Myron Trilsch, Ext. 5404; C. F. Williams, Ext. 5069; William E. Bradford, Ext. 4614.

### NPA Iron and Steel Division, Room 2H8.

**Director:** W. B. Quail, Ext. 4346.

**Deputy Director:** Herbert Johnson, Ext. 3281.

**Assistant to the Director:** Frank T. McCue. Ext. 3962.

**Consultant to the Director:** E. D. Bickford. Ext. 3445.

**Assistant Director and Chairman of Requirements Committee:** Merrick McCafferty, Ext. 3510.

**Assistant Director and Chairman of Production Directives Committee:** J. F. Smith Jr., Ext. 5747. Secretary, Production Directives Committee: Charles Halcomb, Ext. 4637.

**Assistant Director, in Charge of Facilities and Raw Materials Branch:** R. J. Wysor, Ext. 3960.

**MRO Section Chief:** Frank A. Weidman, Ext. 4939.

**Pig Iron Section Chief:** J. A. Claussen, Ext. 4002.

**Plant & Facilities Section Chief:** H. L. Leyda, Ext. 3934.

**Refractories & Fluxes Section Chief:** Mrs. Marguerite M. Sauers, Ext. 4017.

**Scrap Section Chief:** Marvin S. Plant, Ext. 3782. Assistants: Boyd Outman, Ext. 3782; Charles M. Brooks, Ext. 3781.

**Consultants:** James L. Hyland, Ext. 5754; Frank Crockard, Ext. 4731; Harry W. Bryant, Ext. 5948; W. G. Whitsitt, Ext. 5948.

**Statistician:** Elliott S. Moorhead, Ext. 5601.

**Assistant Director, in Charge of Ferroalloys & Metals Branch:** James H. Critchett, Ext. 4795.

**Ferroalloys Section Chief:** Frederick F. Franklin, Ext. 3757. **Deputy Chief:** W. George Johnson, Ext. 5009.

**Manganese & Silicon:** D. H. Duff Jr., Ext. 4681.

**Chromium:** John N. Ludwig Jr., Ext. 3757.

**Molybdenum:** Harry Haas, Ext. 5007.

**Cobalt:** Ernest F. Mechlin Jr., Ext. 3757.

**Columbium:** Joseph B. Edie, Ext. 5810.

**Tungsten:** William D. Crawford, Ext. 5009.

**Vanadium & Specialties:** George T. Motock, Ext. 3757.

**Requirements & Exports:** P. A. Reinertsen, Ext. 5810.

**Nickel Section Chief:** Harold Larsen, Ext. 4682. Assistants: Frank R. Bailey, Ext. 4681; W. W. Alston, Ext. 4682; Oscar Haughom, Ext. 4682.

**Pure Tungsten & Pure Molybdenum Section Chief:** H. M. Lusk, Ext. 4695. Assistant: George C. Wheeler, Ext. 4960.

**Assistant Director, in Charge of Metallurgy & Conservation Branch:** E. J. Hergenroether, Ext. 4868.

**Low-Alloy Steels:** Veryl Graze, Ext. 3607; R. P. Donnell, Ext. 3046; E. V. Bennett, Ext. 5548.

**Tool Steel:** G. A. Barker Jr., Ext. 3046.

**Stainless & Super-Alloy Steels:** George A. Sands, Ext. 5544; E. Rowland, Ext. 3606; J. B. Henry, Ext. 5544.

**Nickel & Chromium Plating:** R. B. Saltonstall, Ext. 5548.

**Welding & Hard Facing:** W. J. Lindner, Ext. 5544.

**Nonferrous Alloys:** H. K. Herschman, Ext. 3607.

**Pipe Section Chief:** C. T. Hapgood, Ext. 4037. Assistant: A. B. Schoen, Ext. 4037.

**Tube Section Chief:** James S. Anderson, Ext. 5439. Assistant: Willis J. Resiner, Ext. 5439.

**Wire Section Chief:** Norman Melville, Ext. 4656.

**Sheet & Strip Section Chief:** P. H. Pocock, Ext. 5991. Assistants: Milton Englert, Ext. 5991; William R. Nolan, Ext. 5992.

**Bars & Semifinished Section Chief:** John Walker, Ext. 5011. Assistant: George L. Anderson, Ext. 5012.

**Warehouse Section Chief:** James Hudson, Ext. 3051. Assistants: Charles Kramer, Ext. 3051; R. N. Carlin, Ext. 3050.

**Forgings Section Chief:** H. F. Weaver, Ext. 3005. Assistant: J. E. Sweeney, Ext. 3004.

**Castings Section Chief:** A. J. McDonald, Ext. 3080. Assistant: Francis J. Buckley, Ext. 3080.

**Rails & Track Accessories Section Chief:** Ray M. Thulean, Ext. 4271.

**Alloy Steel Section Chief:** John J. Boylan, Ext. 5706. **Assistant:** G. V. Bolger, Ext. 5706.

**Cold Drawn Bar Section Chief:** William A. Thompson, Ext. 5705. **Assistant:** S. C. Rogers, Ext. 3054.

**Stainless Steel Section Chief:** W. J. McCune, Ext. 4944.

**Tool Steel Section Chief:** Felix Kremp, Ext. 5916.

**Tin Plate Section Chief:** F. A. McClelland, Ext. 5008.

**Structural Shapes Section Chief:** Robert Smice, Ext. 4011.

**Plate Section Chief:** Paul Landis, Ext. 4947. **Assistant on Armor Plate:** D. S. Wolcott, Ext. 4949. **Assistant:** George W. Kirkley, Ext. 4949.

**Priorities & Statistical Controls Section Chief:** Kenneth H. Hunter, Ext. 3601.

**Munitions Board Liaison Representative:** Kenneth M. Heinrich, LIberty 5-6700, Ext. 75543.

**International Section Chief:** J. J. W. Palmer, Ext. 3816.

### NPA Miscellaneous Metals & Minerals Division, Room 2A2.

**Director:** Harry B. Sharpe, Ext. 5361.

**Assistants:** John E. Steinhauer, Ext. 3091; Mary E. Lubig, Ext. 5068.

### NPA Tin, Lead and Zinc Division, Room 2E1.

**Director:** Erwin Vogelsang, Ext. 4501.

**Tin:** W. L. Raup Jr., Ext. 3166; Arthur Fritschle, Ext. 3167.

**Zinc:** John Sellon, Ext. 4022; Maurice Marcotte, Ext. 3369.

**Zinc & Cadmium:** Mrs. Margaret Murphy, Ext. 3015.

**Lead:** James Owen, Ext. 3930; Arthur Cavanaugh, Ext. 3930.

**Bismuth:** M. E. Parkinson, Ext. 3370; Herbert O. Rogers, Ext. 5436.

### NPA Office of Small Business, 3844 Commerce Bldg.

**Acting Assistant NPA Administrator, for Small Business:** James L. Kelly, Ext. 4670.

**Assistant to Assistant Administrator:** C. F. Hughitt, Ext. 5613. 1410 Tempo T. Bldg.

**Acting Director, Materials & Equipment Assistance Division:** Philip A. Bennett, Ext. 4618. 1431 Tempo T Bldg.

**Management Assistance Division Director:** Wilford L. White, Ext. 4805. 1440 Tempo T Bldg.

**Economic and Production Research Division Director:** J. C. Dockeray, Ext. 4806. 1440 Tempo T Bldg.

**Procurement Assistance Division Acting Director:** T. N. Asbury, Ext. 3011. 1450 Tempo T Bldg.

**Pooling Section Chief:** Wendell O. Metcalf. Ext. 4615. 1323 Tempo T Bldg.

### NPA Office of Labor, 5010 Commerce Bldg.

**Assistant NPA Administrator, for Labor:** O. A. Knight, Ext. 3311.

**Deputy Assistant Administrator:** Ted F. Silvey, Ext. 3311.

### NPA Office of Public Information, Room 3N1.

**Director of Public Information:** Edward K. Moss, Ext. 4466.

**Deputy Director:** Albert J. Lubin, Ext. 4464.

**Information Division Chief:** Rollen B. Kadesch, Ext. 4443, Room 4H4.

# Who's Who in the Defense Organization

## NPA Appeals Board, 5800 Commerce Bldg.

**Chairman:** T. Munford Boyd, Ext. 3820.
**Secretary:** John J. Barron, Ext. 3912.
**Information Officer:** Morton A. Reichek, Ext. 4443.

## NPA Textile, Leather & Specialty Equipment Bureau

**Assistant NPA Administrator:** Horace B. McCoy, Ext. 3421, Room 3840 Commerce Bldg.
**Deputy Assistant Administrator:** Richard W. Murphy, Ext. 3458, Room 3844 Commerce Bldg.
**Information Officer:** Virgil R. Hassler, 4FL New GAO Building, Ext. 4443.
**Aircraft Division Chief:** Joseph J. Mitchener, Ext. 5813, Room 1007 Tempo T Bldg.
**Communication Equipment Division Chief:** Luther W. Hill, Ext. 4128, Fifth Floor 801 E, N. W.
**Consumers Durable Goods Division Chief:** H. J. Holbrook, Ext. 4761, Fourth Floor 801 E, N. W.
**Electronics Division Chief:** Edmund T. Morris, Ext. 3585, Second Floor 801 E, N. W.
**Leather & Leather Products Division Chief:** Julius Schnitzer, Ext. 3639, Room 2131 Tempo T Bldg.
**Motion-Picture-Photographic Products Division Chief:** Nathan D. Golden, Ext. 3171, Room 3828 Commerce Bldg.
**Ordnance and Shipbuilding Division Chief:** W. C. Park, Ext. 5231, Room 2305 Tempo T Bldg.
**Salvage Division Chief:** Edward W. Greb, Ext. 4917, Room 1069 Tempo T Bldg.
**Scientific and Technical Equipment Division Chief:** Howard A. Pringle, Ext. 5904, Room 2258 Tempo T Bldg.
**Service Equipment Division Chief:** Cameron B. Lynham, Ext. 5892, Room 2150 Tempo T Bldg.
**Textile Division Chief:** A. Henry Thurston, Ext. 4097, Room 2007 Tempo T Bldg.
**Water Resources Division Chief:** Harvey S. Howe, Ext. 4964, Room 1405 Tempo T Bldg.

## NPA Mailing List

First basement, East, New GAO Bldg.
**Distribution Branch Chief:** E. E. Vivian, Ext. 5793.

## NPA Chemical, Rubber & Forest Products Bureau

**Assistant NPA Administrator:** Francis J. Curtis, Ext. 4241, Room 2Y1.
**Deputy Assistant Administrator:** G. J. Ticoulat, Ext. 4893, Room 2Y1.
**Chemical Division Director:** Kenneth Klipstein, Ext. 3112, Room 2Z15. **Chief, Aromatic & Coal Tar Chemicals Branch:** L. A. Schlueter, Ext. 5033.
**Containers and Packaging Division Director:** Robert de S. Couch, Ext. 3461, Room 2Q1.
**Lumber & Lumber Products Division Director:** C. A. Bruce, Ext. 3707, Room 2R2.
**Printing & Publishing Division Director:** Arthur R. Treanor, Ext. 3295, Room 2P2.
**Pulp, Paper & Paper Board Division Director:** John W. Maloney, Ext. 4732, Room 2T1.
**Rubber Division Director:** L. E. Spencer, Ext. 3134.
**Information Officer:** Clyde W. LaMotte, Ext. 4443, Room 4FL.

## NPA Facilities & Construction Bureau

**Assistant NPA Administrator:** Frank R. Creedon, Ext. 5151, Room 207 Old GAO Bldg.
**Assistant to Assistant Administrator:** William R. Davlin, Ext. 5431, Room 204 Old GAO Bldg.
**Building Materials Division Director:** John L. Haynes, Ext. 3803, Room 328 Old GAO Bldg.
**Deputy Director:** Charles P. Redick, Ext. 4072, Room 325 Old GAO Bldg.
**Construction Controls Division Director:** Rufe B. Newman, Ext. 3412, Room 312 Old GAO Bldg. **Deputy Director:** Stephen Burns, Ext. 4012, Room 311 Old GAO Bldg.
**Industrial Expansion Division Director:** William E. O'Brien, Ext. 5545, Room 330 Old GAO Bldg.
**Loan Division Director:** Harvey M. Harper, Ext. 3558, Room 306 Old GAO Bldg. **Assistant to Director:** Carl Scheid, Ext. 4593, Room 305 Old GAO Bldg.
**Tax Amortization Division Director:** Ross A. Gridley, Ext. 5587, Room 212 Old GAO Bldg.
**Deputy Director:** Jacob Friedman, Ext. 5588, Room 213 Old GAO Bldg.
**Information Officer:** William J. Digges, Ext. 4443, Room 4FL New GAO Building.

## NPA Office of Assistant Administrator for Production Controls, Room 3K2.

**Assistant Administrator for Production Controls:** Walter C. Skuce, Ext. 4111.
**Deputy Assistant Administrator:** William C. Truppner, Ext. 5107.
**Assistant to the Assistant Administrator:** William Easton, Ext. 4930.
**Technical Coordination Division Director:** John F. Skillman, Ext. 5291.
**Education Branch Chief:** Hardy M. Ray, Ext. 5293.
**Information Officer:** Bruce H. McClure, Ext. 4443, Room 4FL.

## NPA Office of Industry Advisory Committees, 4L1.

**Office of Industry Advisory Committees Director:** G. Lyle Belsley, Ext. 5511.

## NPA Office of Field Service, Room 3890 Commerce Bldg.

**Office of Field Service Director:** Carlton Hayward, Ext. 3641.
**Deputy Director:** Joseph A. Mack, Ext. 2405.
**Special Assistant to the Director:** C. Sterry Long, Ext. 3408.

## NPA Office of Civilian Requirements, Room 5001A Commerce Bldg.

**Assistant NPA Administrator, for Civilian Requirements:** Lewis Allen Weiss, Ext. 4617.
**Deputy Assistant Administrator:** Walter J. Currie, Ext. 4701.
**Consumer End Products Division Director:** Leslie P. Dodge, Ext. 4609.
**Materials Division Director:** Isaac Q. Lord, Ext. 4494.
**Information Officer:** Larry Beller, Ext. 4880.

## ECONOMIC STABILIZATION AGENCY

**Administrator:** Eric Johnston, 811 Vermont Ave. N.W., Room 315, STerling 0167, Ext. 900.
**Director of Information:** Kenneth Clark, 811 Vermont Ave. N.W., Room 307, STerling 0167, Ext. 970.

## Wage Stabilization Board

**Chairman:** Nathan P. Feinsinger, 4062 Federal Security Bldg. South, REpublic 7500, Ext. 2231.
**Executive Director:** Harry Weiss, 4046 Federal Security Bldg. South, REpublic 7500, Ext. 2507.
**Director of Information:** Phillips J. Peck, 4316 Federal Security Bldg. South, REpublic 7500, Ext. 4267.

## Salary Stabilization Board

**Chairman:** Raymond Bernard Allen, 1042 Federal Security Bldg. South, REpublic 7500, Ext. 8405.
**Executive Director:** Joseph D. Cooper, 1042 Federal Security Bldg. South, REpublic 7500, Ext. 8215.
**Director of Information:** William Haggard, 2058 Temporary R Bldg., Republic 7500, Ext. 8444.

## Office of Price Stabilization

Temporary E and S Bldgs. STerling 4200
**Director:** Michael V. DiSalle, H-383 E, Ext. 3215.
**Executive Assistant:** Thomas Klechak, 8-309 E, Ext. 4318.
**Chief Counsel:** Harold Leventhal, 8-318 E, Ext. 2594.
**Director, Office of Price Operations:** Edward F. Phelps Jr., 8-204 E, Ext. 2568.
**Assistant Director, For Public Information:** Max R. Hall, H-271 E, Ext. 3301. **Assistants:** Bainbridge Crist, 7-104 E, Ext. 5730; Lester S. Scott, 7-103 E, Ext. 3491.

## OPS Industrial Materials & Manufactured Goods Division

**Director:** Murray D. Smith, 2067 S, Ext. 3132.
**Assistant Director:** John M. Bulkley, 2067 S, Ext. 3132.
**Assistant Director:** Sam Ewing, 2059 S, Ext. 4989.
**Administrative Officer:** W. F. Hagan, 1053 S, Ext. 6273.
**Division Counsel:** F. Stewart Stranahan, 2053 S, Ext. 4484.
**Metals Branch Chief:** William Kerber, 2505 S, Ext. 5108.
**Iron & Steel Products Section Chief:** W. H. Dupka, 2507 S, Ext. 4610.
**Copper & Brass Section Chief:** A. F. Norling, 2513 S, Ext. 8095.
**Lead, Tin & Zinc Section Chief:** C. C. Rieth, 2515 S, Ext. 8446.
**Castings & Forgings Section Chief:** E. J. Metzger, 2511 S, Ext. 5228.
**Light Metals Section Chief:** W. N. White Jr., 2519 S, Ext. 3236.
**Scrap Iron & Steel Section Chief:** M. Schlossberg, 2521 S, Ext. 8236.
**Miscellaneous Metals & Minerals Section Chief:** J. C. Twinem, 2517 S, Ext. 8892.
**Fabricated Products Section Chief:** H. H. Needham, 2509 S, Ext. 4395.
**Machinery Branch Chief:** L. J. Carson, 2526 S, Ext. 6534.
**Auxiliary Machinery Section Chief:** W. B. Leland, 2506 S, Ext. 8887.
**Construction, Mining & Quarrying Machinery Section Chief:** A. E. Loder, 2518 S, Ext. 8880.
**Cutting Tools & Industrial Supplies Section Chief:** E. L. Norman, 2510 S, Ext. 8876.
**Electrical Machinery & Power Equipment Section Chief:** H. M. Jalonack, 2520 S, Ext. 8889.
**Farm Machinery & Equipment Section Chief:** A. A. Stone, 2504 S, Ext. 2291.
**General Industries Machinery Section Chief:** W. F. Earls, 2524 S, Ext. 5533.
**Metals Extraction & Fabricating Machinery Section Acting Chief:** A. M. Sheard, 2214 S, Ext. 8886.
**Transportation, Materials Handling & Instrument Section Chief:** L. W. Wallace, 2514 S, Ext. 3519.
**Automotive Branch Chief:** W. L. Jordan, 1052 S, Ext. 8884.
**Passenger Car Section Chief:** K. A. Metzerott, 1401 S, Ext. 8879.
**Building Materials Branch Acting Chief:** W. H. Acheson, 2536 S, Ext. 3502.
**Roofing & Insulation Section Acting Chief:** Donald Linville, 2538 S, Ext. 3119.
**Masonry Materials Section Chief:** W. H. Acheson, 2536 S, Ext. 6538.
**Hardware & Miscellaneous Products Section Acting Chief:** J. W. Wiley, 3540 S, Ext. 3119.
**Mechanical Building Equipment Section Acting Chief:** R. C. Cook, 2536 S, Ext. 3118.
**Construction & Distribution Section Chief:** T C. Letchworth, 2540 S, Ext. 8026.

## OPS Food and Restaurant Division

**Acting Director:** George L. Mehren, 1071 S. Ext. 6242.
**Assistant Director:** Arval L. Erikson, 1075 S, Ext. 6244.

## OPS Transportation, Public Utilities & Fuels Division

**Director:** G. Storer Baldwin, H-265 E, Ext. 4244.
**Petroleum Branch Chief:** Orville D. Judd, 6-220 E, Ext. 8251.
**Transportation Branch Acting Chief:** Lester R. Conley, 6-211 E, Ext. 3949.
**Solid Fuels Branch Chief:** William A. Fullarton, 6-219 E, Ext. 4262.
**Coke & Coal Chemical Section Acting Chief:** Jay D. Saylor, 6-217 E, Ext. 8278.
**Public Utilities Branch Chief:** J. W. Lauderdale, 6-210 E, Ext. 5600.

## OPS Consumer Durable Goods Division

**Acting Director:** Eugene Smallwood, 2017 S, Ext. 5245.
**Appliance & Equipment Branch Acting Chief:** Miles E. Magargel, 2207 S, Ext. 4979.
**Business Equipment Section Chief:** William S. Miller, 2221 S, Ext. 4285.
**Appliance Section Chief:** Elwood R. Berkley, 2223 S, Ext. 8575.
**Professional Goods Section Acting Chief:** John F. Inderdohnen, 2219 S, Ext. 6279.
**Stove Section Chief:** Walter Kirby, 2221 S, Ext. 3686.
**Home Furnishings Branch Chief:** Lee McCanne, 2201 S, Ext. 4866.
**Housewares & Accessories Branch Chief:** J. Hepner Randolph Jr., 2209 S, Ext. 6637.

## OPS Consumer Soft Goods Division

**Director:** Thomas L. Karsten, 2017 S, Ext 5245.
**Assistant Director:** Sidney Shreero, 2077 S, Ext. 4528.

## OPS Forest Products Division

**Acting Director:** Walter J. Damtoft, 1011 S, Ext. 5663.

## OPS Rubber, Chemicals and Drugs Division

**Director:** Thomas H. McCormack, 1003 S, Ext. 8055.

## OPS Services, and Export-Import Division

**Acting Director:** Max L. Feinberg, 1047 S, Ext. 8541.
**Imports & Exports Branch Acting Chief:** Javier H. Cerecedo, 1402 S, Ext. 8555.
**Export Section Chief:** George McK. Roberts, 1402 S, Ext. 4709.
**Imports Section Chief:** Napoleon C. Guccione, 1402 S, Ext. 8556.

## DEFENSE DEPARTMENT

The Pentagon—LIberty 5-6700
**Col. George W. White** is chief of the Industrial Services Branch, Office of Public Information, Office of Secretary of Defense.

organized to answer questions and clear requests of industry, and **Jay Cassino** is chief of the branch's Information Section. They are located in Room 2A858, The Pentagon. Extension for Col. White is 75881, for Mr. Cassino 75310.

Those wishing to contact personnel in the Munitions Board (the military policy coordinating agency) should see or telephone or write to the Public Relations Adviser to the Munitions Board, **Col. William Westlake,** 3E843 The Pentagon, Ext. 75361.

Small businessmen with problems that require help from the military should see, write or telephone the chief, Small Business Office, Munitions Board, who is **Richard Lennihan,** Room 3D758, The Pentagon, Ext. 71481.

For assistance in matters relating to procurement see the Central Military Procurement Information Office, Room 3D754, The Pentagon, Ext. 66151.

## DEFENSE SOLID FUELS ADMINISTRATION

Interior Bldg. REpublic 1820

**Administrator:** Charles W. Connor, Room 5312, Ext. 5225.

**Deputy Administrator:** Edward T. Klett, Room 5316, Ext. 5210.

**Deputy Administrator:** W. F. Hahman, Room 5312, Ext. 5391.

**Deputy Administrator:** Charles R. Ferguson, Room 5320, Ext. 5211.

**Director of Information:** Andy Newman, Room 5315, Ext. 5064.

**Joint Committee on Mining Machinery & Equipment Chairman:** Clem C. Austin, Room 5210, Ext. 2485.

**Coke Division Director:** George P. Wilson, Room 5215, Ext. 2203. **Assistant to Mr. Wilson:** Donald E. McBrien, Room 5215, Ext. 2203. **Coke consultants:** Edward H. Holley, Room 5326, Ext. 2203, and **Ray T. Patton,** Room 5213, Ext. 3403. **Coke industry analysts:** Elmer J. Crossen and Leo A. Kraemer, Room 5326, Ext. 2203.

**Transportation Division Director:** Walter J. Howard, Room 5211, Ext. 2073.

**Equipment & Materials Requirements Division Director:** Clyde W. Woosley, Room 5214, Ext. 2481.

**Industry Finance Division Director:** Leo N. Plein, Room 5322, Ext. 2403.

**Manpower Division Director:** Lee M. Morris, Room 5320, Ext. 5211.

**General Counsel:** Harry A. Sellery, Room 5311, Ext. 5393.

## DEFENSE ELECTRIC POWER ADMINISTRATION

Interior Building REpublic 1820

**Administrator:** James F. Fairman, Room 5459, Ext. 664 and 5237.

**Deputy Administrator:** Ken G. Whitaker, Room 5459, Ext. 5238.

**Special Assistant:** Francis A. Kolb, Room 5458, Ext. 2553.

**General Counsel:** E. Jason Dryer, Room 5451, Ext. 2698.

**Director of Information:** George Sanford Holmes, Room 5443, Ext. 3222.

**Consultant:** J. E. Moore, Room 5449, Ext. 3611.

**Power Supply Division Director:** Robert Brandt, Room 5446, Ext. 621.

**Power Requirements Branch Chief:** Clifford R. Beardsley, Room 4460, Ext. 3227.

**Power Coordination & Planning Branch Chief:** Arthur B. Vieregg, Room 5452, Ext. 621 and 2411.

**Materials & Equipment Division Director:** Thomas E. Marburger, Room 5450, Ext. 621.

**Major Projects Control Branch Chief:** Clinton T. Hurd, Room 5256, Ext. 2334.

**Minor Requirements Branch Chief:** B. B. Parker, Room 4458, Ext. 2947.

**Construction Expediting Branch Chief:** A. G. Skina, Room 4062, Ext. 5327.

**Major Equipment Scheduling Branch Chief:** Richard J. Grant, Room 4457, Ext. 2729.

### Petroleum Administration For Defense

Interior Bldg. REpublic 1820

**Deputy Administrator:** Bruce K. Brown, Room 6512, Ext. 3831.

**Assistant Deputy Administrator:** Hugh A. Stewart, Room 6521, Ext. 4164.

**Assistant Deputy Administrator for Domestic Industry Operations:** Alfred P. Frame, Room 6516, Ext. 3891.

**Assistant Deputy Administrator for Foreign Petroleum Operations:** Stribling Snodgrass, Room 6520, Ext. 3165.

**Assistant Deputy Administrator for Gas Operations:** Charles P. Rather, Room 6517, Ext. 5321.

**Program Division Director:** Cecil L. Burrill, Room 6458, Ext. 2728.

**Materials Division Director:** Frank Watts, Room 2542, Ext. 5397.

**Director of Information:** G. Bryant Putney, Room 6529, Ext. 5333.

## NATIONAL SECURITY RESOURCES BOARD

Executive Office Bldg. STerling 4700

**Acting Chairman:** Jack Gorrie, Room 206, Ext. 3311.

**Special Assistant to Chairman, for Information:** Tom Yarbrough, Room 305, Ext. 3245.

## DEFENSE TRANSPORT ADMINISTRATION

Interstate Commerce Commission Bldg. REpublic 7500

**Administrator:** James K. Knudson, Room 4134, Ext. 6516.

**Director of Information:** Charles Baxter, Room 1116, Ext. 6309.

## DEFENSE MANPOWER ADMINISTRATION

Labor Department Bldg. EXecutive 2420

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**Executive Director:** Robert C. Goodwin, Ext. 780.

**Deputy Director:** Leo Wertz, Ext. 215.

**Director of Information:** Laurence Weiss, Ext. 388.

## MARITIME ADMINISTRATION

Commerce Bldg. EXecutive 3340

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**Public Information Officer:** Stephen C. Manning, Room 4857, Ext. 60.

## NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

1724 F Street, N.W. LIberty 5-6700

**Information Specialist:** Walter T. Bonney, Room 606, Ext. 63229.

**Research Information Division Chief:** Eugene Miller, Room 202, Ext. 63983.

## ATOMIC ENERGY COMMISSION

1901 Constitution Avenue, N.W. STerling 8000

**Director of Information Services:** Morse Salisbury, Room 204, Ext. 693.

## RECONSTRUCTION FINANCE CORPORATION

811 Vermont Avenue, N.W. EXecutive 3111

**Special Assistant to Administrator, for Information:** James Allen, Room 1229, Ext. 181.

## UNITED STATES COAST GUARD

1300 E Street, N.W. EXecutive 6400

(In addition to conducting regular Coast Guard programs, the Coast Guard plays a leading role in shaping policies and conclusions of the Merchant Marine Council and the Ship Structure Committee)

**Information Officers:** Capt. Leon H. Morine and Lt. Cdr. William D. Strauch Jr., both in Room 1008, Ext. 2993.

## OFFICE OF TECHNICAL SERVICES

Commerce Bldg. STerling 9200

(Government agency for making available to the public technical information developed by the government)

**Director:** John C. Green, Room 1313, Ext. 2143.

## NATIONAL INVENTORS' COUNCIL

Commerce Bldg. STerling 9200

(Encourages inventors to contribute ideas for defense)

**Chief Engineer:** John C. Green, Room 1313, Ext. 2143.

**Assistant Chief Engineer:** Leonard Hardland, Room 1319, Ext. 3311.

## OFFICE OF INTERNATIONAL TRADE

Commerce Bldg. STerling 9200

**Information Officer:** Frank C. Cross, Room 3711, Ext. 3681.

## SELECTIVE SERVICE SYSTEM

1712 G Street, N.W. REpublic 5500

**Director:** Maj. Gen. Lewis B. Hershey, Room 516, Ext. 3501.

**Chief Information Officer:** Lt. Col. Irving W. Hart, Room 509, Ext. 3675.

## TECHNICAL COOPERATION ADMINISTRATION

1901 D Street, N.W. REpublic 5600

(State Department's agency for executing the Point Four program of technical assistance to foreign countries)

**Administrator:** Dr. Henry Garland Bennett, Ext. 2162.

**Industry & Government Services Division Chief:** George Tayloe Ross, Ext. 3109.

**Director of Information:** Benjamin Hardy, Ext. 3011.

## FEDERAL CIVIL DEFENSE ADMINISTRATION

1930 Columbia Road, N.W. HUdson 5500

**Director, Office of Public Affairs:** John A. DeChant, Ext. 207.

**Publications Division Chief, Office of Public Affairs:** Thomas P. Headen, Ext. 317.

## ECONOMIC COOPERATION ADMINISTRATION

806 Connecticut Avenue N.W. STerling 6400

(Administering Marshall Plan economic assistance to Western Europe, and economic assistance to Southeast Asia)

**Industrial Commodities & Facilities and Equipment Divisions Director:** Glenn H. Craig, Ext. 2912.

**Machinery & Equipment Branch Chief:** Charles J. Baker, Ext. 2775.

**Projects Branch Chief** (handling plant expansion and equipment programs involving $1 million or more): George H. Knutson, Ext. 2988.

**Farm Machinery Branch Chief:** William R. Nolan, Ext. 2541.

**Iron & Steel Branch Chief:** C. G. McNaron, Ext. 2633.

**Nonferrous Metals Branch Chief:** Ralph L. Wilcox, Ext. 3100.

**Director of Information:** Robert R. Mullen, Ext. 2627.

## GENERAL SERVICES ADMINISTRATION

GSA Bldg. EXecutive 4900

**Administrator:** Jess Larson, Ext. 4312, Room 6137.

**Special Assistant to the Administrator** (for metals and minerals expansion programs under the Defense Production Act): Irving Gumbel, Ext. 5181, Room 5113.

**Commissioner of Emergency Procurement Services** (for stockpiling): A. J. Walsh, Ext. 2243, Room 7132 (Seventh and D streets S.W.).

**Commissioner of Federal Supply Service:** Clifton E. Mack, Ext. 5268, Room 3143.

**Director of Information:** Joseph S. Cohen, Ext. 4511, Room 6113.

**Deputy Director of Information:** Herbert C. Plummer, Ext. 4511, Room 6113.

## DEFENSE MATERIALS PROCUREMENT AGENCY

GSA Bldg. EXecutive 4900

**Administrator:** Jess Larson, Ext. 4312, Room 6137.

**Deputy Administrator:** Howard I. Young, Ext. 4312, Room 6137.

**Information Officers:** Joseph S. Cohen and Herbert C. Plummer, Ext. 4511, Room 6113.

## DEFENSE MINERALS ADMINISTRATION

Interior Bldg. REpublic 1820

(In process of being reorganized, with transfer of principal functions to the new Defense Materials Procurement Agency, listed above. The following three divisions probably will be shifted intact to the DMPA)

### DMA Supply Division

**Director:** Tom Lyon, Ext. 3433, Room 3612.

**Lead & Zinc Branch Chief:** Thomas Billings, Ext. 5226, Room 3618.

**Light Metals Branch Chief:** Howard L. Heckman, Ext. 4409, Room 3626.

**Minor & Rare Metals Branch Chief:** W. Bourret, Ext. 3318, Room 2616.

**Iron Ore Branch Chief:** Paul E. Pesonen, Ext. 4024, Room 1039.

**Copper Branch Chief:** J. B. Gowen, Ext. 2574, Room 2612.

**Ferroalloys Branch Chief:** George B. Holderer, Ext. 2376, Room 3624.

### DMA Requirements Division

**Acting Director:** Francis B. Speaker, Ext. 3038, Room 2465.

**Manpower Branch Chief:** Stephen Wood, Ext. 4772, Room 2465.

**Housing & Utilities Branch Chief:** Stanley M. Walker, Ext. 2670, Room 2465.

### DMA Production Expansion Division

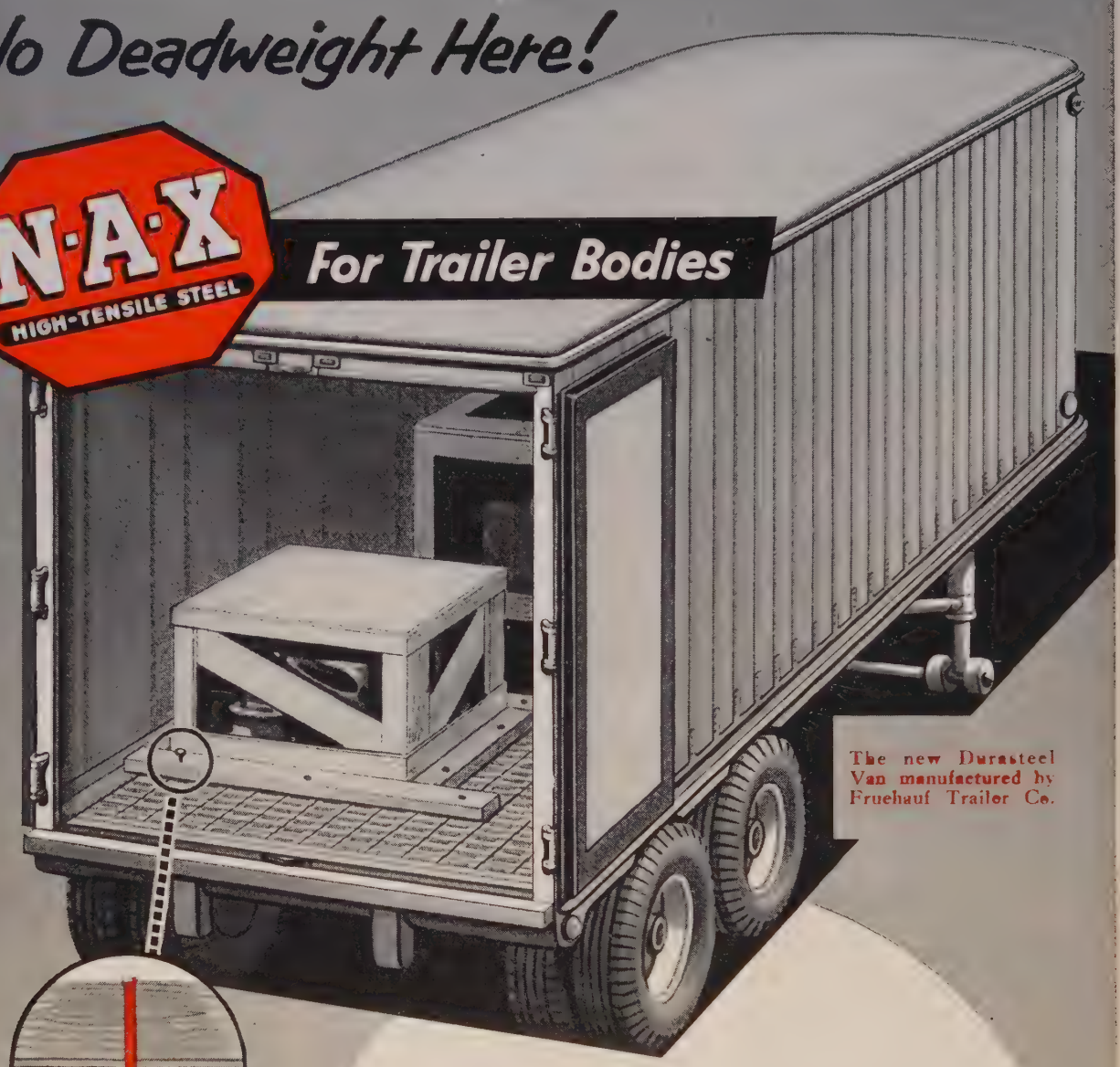
(Responsible for arranging contracts for minerals production expansion)

**Director:** C. Otto Mittendorf, Ext. 5371, Room 4640.

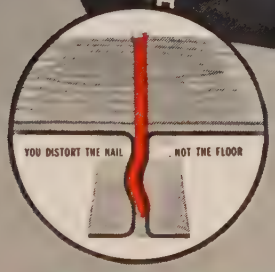
# No Deadweight Here!

**N-A-X** HIGH-TENSILE STEEL

## For Trailer Bodies



The new Durasteel Van manufactured by Fruehauf Trailer Co.




*Great Lakes' Stran-Steel Flooring has high strength and light weight. Its unique nailability permits safe blocking of loads. You distort the nail . . . not the floor.

America's first all-steel trailer body is on the highways—roof, sides, framing and flooring,* all of N-A-X HIGH-TENSILE steel. Years of planning, testing and research went into this unique trailer body, making it the most serviceable ever built.

1. The use of N-A-X HIGH-TENSILE steel in this equipment results in light weight with strength and durability.
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More and more of America's highway equipment manufacturers are swinging to N-A-X HIGH-TENSILE steel. Millions of on-the-job miles have proved the superior qualities of this steel . . . have proved its over-all economy.

**GREAT LAKES STEEL CORPORATION**

N-A-X Alloy Division • Ecorse, Detroit 29, Michigan

**NATIONAL STEEL CORPORATION**

NATIONAL STEEL

It's your SCRAP that makes your STEEL
Keep it moving to your scrap dealer

By H. C. TUTTLE *Detroit Editor*

# Mirrors of Motordom

**Auto makers beat the bushes for materials which are so short that they may be able to build only 850,000-900,000 cars in the fourth quarter**

*DETROIT*

THIS IS the quarter when in theory at least automobile and other consumer durable goods manufacturers start enjoying the benefits of the Controlled Materials Plan.

Against it from the start, many automobile makers are seeing their worst fears realized as the industry's allocations of steel, copper and aluminum are whittled back more and more and difficulties continue in getting honored what CMP tickets they do have.

**Brainwork**—So, automotive purchasing agents are working overtime on ways to get more material. One story had it that General Motors was in a scheme to trade Korean battlefield scrap with Japanese steel mills for finished steel. GM says that's "absolutely without foundation." But many deals really have been worked out. One of the biggest is the agreement by Chrysler and Packard to lend money to Pittsburgh Steel in trade for steel. GM had already done that with J & L and Republic. Conversion activity is markedly increasing, and there has been an unusual amount of interchange of finished steel products among automotive companies. That interchange figures in the changed relationship whereby Kaiser-Frazer becomes a supplier for Fisher Body.

Auto builders are working the hardest to get foreign steel, copper and aluminum because whatever material they can bring in is not chargeable against CMP allocations. Studebaker Corp. is an active importer. Harold S. Vance, chairman and president, points out that the tonnage being received from Belgium mills is by no means tremendous. It won't assure uninterrupted civilian production and employment, but it'll help. "The importation of steel is, of course, an expensive proposition," he admits. "It is at the same time a good example of the extent to which industry will go toward preserving jobs, satisfying the needs of the customers and serving the best interests of the dealers."

**Aid to Suppliers** — The story of how Studebaker lined up this material is an interesting one, and one which other automakers are trying hard to duplicate. Some months ago officials of the No. 4 auto maker realized they would have to beat some other bushes (the domestic ones were already well trampled) in the search for steel. So Studebaker's one-time director of purchases and now vice president in charge of manufacturing, P. O. Peterson, and company treasurer E. E. Richards, equipped, we presume, with a checkbook, embarked for Europe. In Belgium they found what they were after: Several mills agreed to supply them with forging billets, both alloy and carbon. That material is now arriving regularly in New York from Antwerp. From dockside it fans out in many directions to the manufacturers of Studebaker crankshafts, connecting rods and steering knuckles.

Helpful as such steel is, it is not available in large enough quantities to make much of a difference in the production outlook of Studebaker or any other car maker. A few companies seem to have their steel problems fairly well in hand for fourth quarter. Those however, are in the minority.

STUDEBAKER: ACTIVE IMPORTER OF FOREIGN STEEL
*. . . every bit of Belgian steel helps*

**Trouble for All**—For all, furthermore, it's going to be touch-and-go on copper. Some have said that their per-unit consumption is already at a minimum, and this situation gives rise to the prevalent feeling in Detroit that some relief must be given to copper users if auto production is to maintain somewhere near its present rate. Instead of a little in excess of one million cars in fourth quarter, some sources indicate that 850,000-900,000 is a more realistic figure. In making that prediction they think

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that materials, not customers, will be the limiting factor.

## Sales Surpass Production

Sales reports by various of the largest car makers indicate that the turnout of passenger cars already is behind demand and that it is a question of only a short time before dealers' stocks are cleaned out. In the case of Chrysler Division, President David A. Wallace recently reported that the division has 25,000 unfilled orders for cars equipped with its V-8 engine and that sales match production. If the present rate of production can be maintained the number of eight-cylinder cars shipped by the division this year will equal 1949 and 1950's combined output of eights.

The corporation, to prevent overbuilding against its third quarter quota established by NPA's order M-68, closed its divisions down last week for several days and used the downtime to take inventory. GM interrupted production at the end of July for the same reason.

## Bad News About Alloys

The industry's metallurgists heard bad news when Ernie Hergenroether spoke before the SAE Iron & Steel Technical Committee meeting last week.

Mr. Hergenroether, metallurgist with International Nickel Co., is currently doing a stint with NPA in charge of metallurgy and conservation in the Iron & Steel Division. Repeatedly he said: "If you want to build your units you had best find the leanest alloys you can. We can't give you something we haven't got." Running through a list of the alloying elements, he indicated that nearly all will be in tighter supply before they loosen. Apparent demand for nickel and molybdenum is about two and a half times available supply, and moly may tighten even further. Even chromium may come into shorter supply but it may not be necessary to allocate. Although increase in nickel output is not on schedule, by the middle of next year the Cuban operation will become a factor and by late in 1952 new Canadian sources are expected to come in.

## Auto, Truck Output

U. S. and Canada

| | 1951 | 1950 |
|---|---|---|
| January | 645,688 | 609,879 |
| February | 658,918 | 505,593 |
| March | 802,737 | 610,680 |
| April | 680,281 | 585,705 |
| May | 695,898 | 732,161 |
| June | 653,682 | 897,853 |
| Six Mos. | 4,137,204 | 3,941,878 |
| July | 522,853 | 746,801 |
| August | 570,597* | 842,335 |
| September | 494,810* | 760,847 |
| October | | 796,010 |
| November | | 833,784 |
| December | | 671,622 |
| Week Ended | 1951 | 1950 |
| Sept. 1 | 137,479 | 188,072 |
| Sept. 8 | 103,224 | 151,606 |
| Sept. 15 | 136,150 | 185,421 |
| Sept. 22 | 135,436 | 188,451 |
| Sept. 29 | 120,000* | 187,030 |

Sources: Automobile Manufacturers Association, Ward's Automotive Reports. *Preliminary.

He suggested that it may be possible for alloy users to reduce their requirements by as much as 50-75 per cent with the lean-alloy boron-treated steels. More of those are becoming available, he said, with 25,000 tons on the August melt schedule, 37,000 tons in the September schedule, and probably more for October.

Among his listeners were a few men who complained that they still have been unable to get certain of the boron-bearing grades for testing. He advised that companies in this plight should write him, and representatives of mills there promised that they would make available samples of the boron grades they are producing.

One of the most worrisome problems of alloy steel producers, expressed at the meeting, is over the failure of users to segregate properly their alloy-bearing scrap. Fifty per cent of their alloy requirements are supposed to come from scrap, but unless users can be convinced of the necessity of this reclamation work the mills will ultimately be unable to keep production of alloy steels at present levels.

## Arsenal Gets New Officers

Four Army officers have been brought into key positions at Detroit's ordnance tank-automotive center as part of the shake-up which has been in progress since Brig. Gen. David J. Crawford was relieved of his command and replaced by Brig. Gen. Carroll H. Deitrick.

Col. A. R. Cyr is designated executive officer, coming to the center from Frankford Arsenal where he had been executive officer and chief of the artillery ammunition department. New head of the Procurement Division is Col. H. G. Davisson who has been chief of procurement at Picatinny Arsenal. Col. Henry J. Katz is named fiscal director and chief of a new audit section. He had been executive officer of the Erie Proving Ground. Lt. Col. Vernon C. Rawls, assigned from the Judge Advocate General's office, is chief of the Legal Division.

## Old Timers Hear Hoffman

Twelfth annual dinner meeting of the Automobile Old Timers takes on unusual significance this year. For one thing, it will be held in Detroit for the first time. For another its speaker is to be Paul G. Hoffman, the man who many auto men think would be the best equipped president this country could have. Mr. Hoffman, head of the Ford Foundation, former economic cooperation administrator, and ex-president of Studebaker, will be making his first major address since his return from a globe-circling tour taken to find out how the Ford Foundation can best help the peoples of the world and promote world peace.

The dinner on Oct. 4 is expected to attract automaking "greats" in larger quantity than any gathering in recent years. Citations of distinguished service will be presented to William B. Stout, famous automotive inventor, P. W. Litchfield, rubber pioneer and chairman of Goodyear Tire & Rubber, Wilbur Shaw, president of the Indianapolis motor speedway, Earle C. Anthony, one of earliest West Coast auto dealers, and William L. Mallon, past president of the National Automobile Dealers Association. Also participating in the program will be George W. Mason, president of the Automobile Manufacturers Association and of Nash-Kelvinator Corp., Alfred Reeves, advisory vice president of AMA, and J. E. Henry, president of the Automobile Old Timers.

# The Business Trend

**There's plenty of support for a business pickup, but the rise is likely to be a gradual one. Industrial production index remains at status quo**

BALANCED on a high plateau, the economy should make its decisive move upward soon.

Businessmen have waited patiently for a big surge in September—and it didn't develop. Scattered signs of an upswing are evident, but they indicate more of a gradual rise than a sudden spurt.

Government, industrial and consumer spending, so the economists say, will form the irresistible combination that'll not only shore up business against recession, but will push it ahead rapidly in the next few months. A strong push, of course, would be from the government. Its expenditures in each of the next four years will average over $75 billion, not counting a larger air force or foreign aid. About two-thirds of the money budgeted will be for arms—meaning a large slice for metalworking. Industrial capacity is still growing by leaps and bounds, though fourth-quarter plant expenditures will slide off a bit from July-September totals. Physical volume of plant-equipment buying this year will be 25 per cent higher than last and about one-sixth more than in 1948, the previous record year, says the Commerce Department. That estimate takes into account increases in costs this year too.

Production, though governed largely by the military timetable, still includes a high volume of civilian goods. Step-up this fall will see improvement in arms output without considerable sacrifice of less-essential products. The ratio didn't change much in the week ended Sept. 22, according to STEEL's industrial production index. It dropped off one point from the preceding week's mark to 216 per cent of the 1936-1939 average because of a slight dip in electric power output.

## Slow Rise in Steel Rate . . .

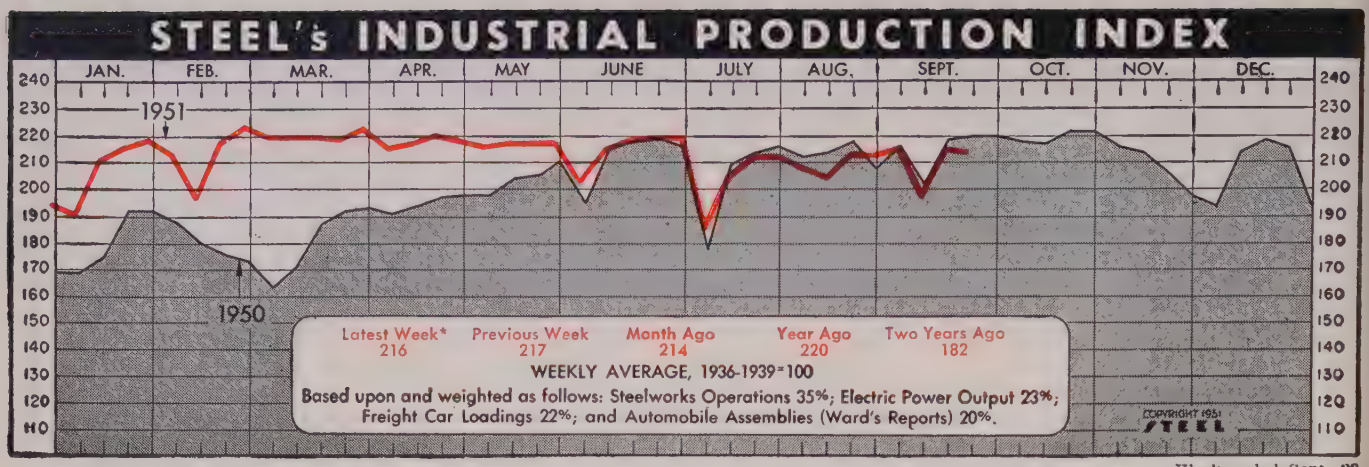
Highest production level in over a month was scheduled by the steel industry in the week ended Sept. 29. The American Iron & Steel Institute says mills would operate at above-capacity rates for the third consecutive week. Yield was calculated to be 2,041,000 net tons of ingots and steel for castings. This would be 18,000 tons more than were poured the week before, and 99,000 tons above production in the corresponding week a year ago. Winter cutbacks in production are already foreseen because of scrap shortages.

## Auto Assemblies Steady . . .

Sticking close to assembly schedules, U. S. and Canadian plants turned out 135,436 passenger cars and trucks in the week ended Sept. 22. This was about 700 fewer units than were produced the week before and some 50,000 units below the level at this time last year. U. S. assemblies in September were estimated by *Ward's Automotive Reports* at 362,000 cars and 106,000 trucks. Both totals are near the projected volume, but compared to September, 1950, there were 40 per cent fewer autos and 2 per cent more trucks produced. Passenger car output thus far this year is trailing the 1950 pace by

## BAROMETERS of BUSINESS

| | | LATEST PERIOD* | PRIOR WEEK | MONTH AGO | YEAR AGO |
|---|---|---|---|---|---|
| INDUSTRY | Steel Ingot Output (per cent of capacity)† | 101.0 | 100.0 | 98.0 | 101.0 |
| | Electric Power Distributed (million kilowatt hours) | 7,014 | 7,138 | 7,077 | 6,457 |
| | Bituminous Coal Production (daily av.—1000 tons) | 1,808 | 1,539 | 1,715 | 1,897 |
| | Petroleum Production (daily av.—1000 bbl.) | 6,290 | 6,282 | 6,220 | 5,894 |
| | Construction Volume (ENR—Unit $1,000,000) | $232.4 | $189.2 | $188.9 | $238.9 |
| | Automobile and Truck Output (Ward's—number units) | 135,436 | 136,150 | 138,797 | 188,451 |
| | *Dates on request. †Weekly capacities, net tons: 1951, 1,999,035; 1st half 1950, 1,906,268; 2nd half 1950, 1,928,721. | | | | |
| TRADE | Freight Car Loadings (unit—1000 cars) | 855† | 851 | 839 | 870 |
| | Business Failures (Dun & Bradstreet, number) | 160 | 164 | 130 | 155 |
| | Currency in Circulation (in millions of dollars)‡ | $28,140 | $28,216 | $27,932 | $27,081 |
| | Department Store Sales (changes from like wk. a yr. ago)‡ | −10% | −2% | −4% | +17% |
| | †Preliminary. ‡Federal Reserve Board. | | | | |
| FINANCE | Bank Clearings (Dun & Bradstreet—millions) | $18,705 | $14,918 | $15,210 | $18,555 |
| | Federal Gross Debt (billions) | $256.8 | $256.6 | $256.4 | $256.8 |
| | Bond Volume, NYSE (millions) | $14.2 | $16.4 | $10.1 | $20.4 |
| | Stocks Sales, NYSE (thousands of shares) | 10,180 | 10,929 | 6,103 | 9,901 |
| | Loans and Investments (billions)† | $70.7 | $70.4 | $70.3 | $68.9 |
| | United States Gov't. Obligations Held (millions)† | $30,722 | $30,768 | $30,949 | $34,840 |
| | †Member banks, Federal Reserve System. | | | | |
| PRICES | STEEL's Weighted Finished Steel Price Index†† | 171.92 | 171.92 | 171.92 | 156.99 |
| | STEEL's Nonferrous Metal Price Index‡ | 224.6 | 224.6 | 224.6 | 217.2 |
| | All Commodities† | 176.7 | 176.9 | 176.7 | 170.3 |
| | Metals and Metal Products† | 189.4 | 188.2 | 188.1 | 177.1 |
| | †Bureau of Labor Statistics Index, 1926=100. ‡1936-1939=100. ††1935-1939=100. | | | | |




Week ended Sept. 22

more than 630,000 units. Materials, not sales, continue to govern output.

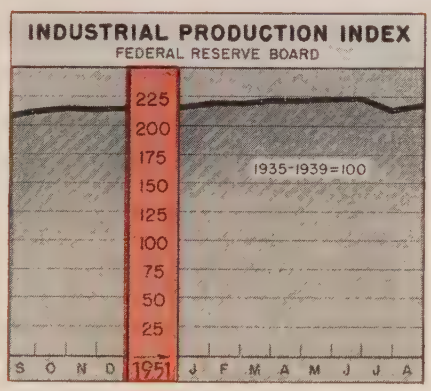
## Car Loadings Hit '51 High . . .

Revenue freight car loadings, good indicator of transportation activity, were highest since last November in the week ended Sept. 15. The total of 850,813 loadings, while almost 2 per cent lower than in the corresponding week last year, showed the largest percentage jump in months. Preliminary reports indicate that revenue loadings for the rest of September were even higher. Freight car supply is expected to be rather tight in the peak loading period—October, but the railroads have about 34,000 more serviceable cars than a year earlier.

## Retail Prospects Brighten . . .

Key to civilian production is retail sales. Consumers spent savings or borrowed money in the rush to buy goods following Korea and haven't bought much since. First it was the severity of the consumer slump that hurt business; now it's the duration.

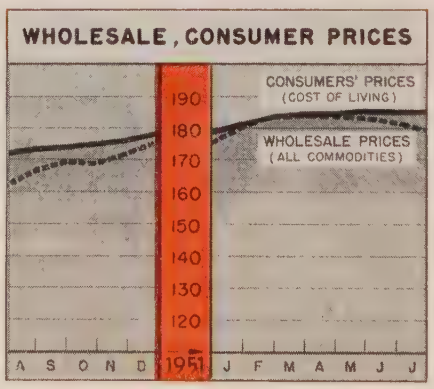
Retail business should shake off its pallor soon—if recent indications mean anything. Overbuying effects seem to be wearing off now, and prices aren't likely to fall much lower. Bank accounts that have been getting such devoted attention most of this year are swelling back to normal. Jobs are plentiful, pay is high, and disposable personal income this year will set a new record—even after the most crushing burden of taxes in history. Retailers are anticipating a more normal consumer spending rate: They're buying for inventory again. Volume of incoming orders has risen steadily but unspectacularly since early summer and bookings are now within 10 per cent of last fall's peak. August retail sales were 10 per cent higher than July's, but still 10 per cent below those of August.




**Industrial Production Index**

| | Total Production 1951 | Total Production 1950 | Iron, Steel 1951 | Iron, Steel 1950 | Non-ferrous 1951 | Non-ferrous 1950 |
|---|---|---|---|---|---|---|
| Jan. | 221 | 183 | 255 | 203 | 224 | 180 |
| Feb. | 221 | 180 | 252 | 201 | 218 | 190 |
| Mar. | 222 | 187 | 263 | 205 | 212 | 200 |
| Apr. | 223 | 190 | 264 | 222 | 210 | 198 |
| May | 223 | 195 | 263 | 226 | 206 | 197 |
| June | 222 | 199 | 261 | 231 | 205 | 207 |
| July | 213 | 196 | 254 | 228 | 201 | 202 |
| Aug. | 218 | 209 | ... | 236 | ... | 212 |
| Sept. | ... | 211 | ... | 245 | ... | 216 |
| Oct. | ... | 216 | ... | 253 | ... | 223 |
| Nov. | ... | 214 | ... | 247 | ... | 227 |
| Dec. | ... | 217 | ... | 253 | ... | 227 |
| Avg. | ... | 200 | ... | 229 | ... | 207 |

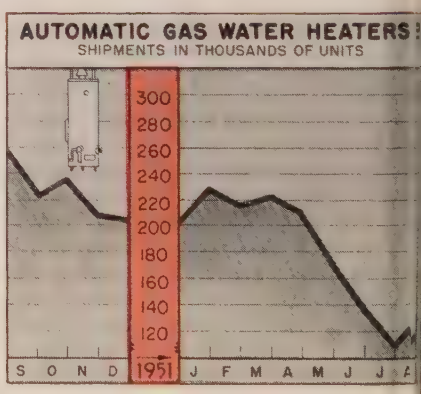
Federal Reserve Board.




**Price Indexes**

| | Wholesale (1926=100) 1951 | Wholesale (1926=100) 1950 | Consumers (1935-39=100) 1951 | Consumers (1935-39=100) 1950 |
|---|---|---|---|---|
| Jan. | 180.1 | 151.5 | 181.5 | 168.2 |
| Feb. | 183.6 | 152.7 | 183.8 | 167.9 |
| Mar. | 184.0 | 152.7 | 184.5 | 168.4 |
| Apr. | 183.6 | 152.9 | 184.6 | 168.5 |
| May | 182.9 | 155.9 | 185.4 | 169.3 |
| June | 181.8 | 157.3 | 185.2 | 170.2 |
| July | 179.5 | 162.9 | 185.5 | 172.0 |
| Aug. | .... | 166.4 | .... | 173.4 |
| Sept. | .... | 169.5 | .... | 174.6 |
| Oct. | .... | 169.1 | .... | 175.6 |
| Nov. | .... | 171.7 | .... | 176.4 |
| Dec. | .... | 175.3 | .... | 178.8 |

U. S. Bureau of Labor Statistics.




**Automatic Gas Water Heaters**

Shipments in Units

| | 1951 | 1950 | 1949 |
|---|---|---|---|
| Jan. | 225,600 | 131,600 | 88,400 |
| Feb. | 213,400 | 156,500 | 84,500 |
| Mar. | 223,300 | 172,800 | 106,000 |
| Apr. | 199,400 | 176,400 | 115,200 |
| May | 167,400 | 195,200 | 120,200 |
| June | 131,500 | 207,100 | 132,200 |
| July | 110,300 | 197,500 | 114,400 |
| Aug. | 132,300 | 259,800 | 138,800 |
| Sept. | ..... | 222,600 | 147,300 |
| Oct. | ..... | 235,100 | 154,200 |
| Nov. | ..... | 206,000 | 138,300 |
| Dec. | ..... | 202,500 | 126,500 |
| Total | ..... | 2,363,100 | 1,466,000 |

Gas Appliance Mfrs. Assoc.

Charts—Copyright 1951, STEEL

1950. In the first half of September seasonal promotions spurred total retail trade to match dollar volume of the comparative year-ago period, but actual physical volume was about 8 per cent less. Nondurables bettered their position noticeably and durables improved slightly.

## Heating Equipment Wilts . . .

Shipments of gas-fired central heating equipment (boilers, furnaces and conversion burners) for the first eight months of the year are 42 per cent behind those of last year. August shipments of 52,400 units brought the eight-month total to only 389,300. This figure, small as compared to last year's record, is still almost ten times the pre-war average shipments of this equipment.

## More Steelworkers . . .

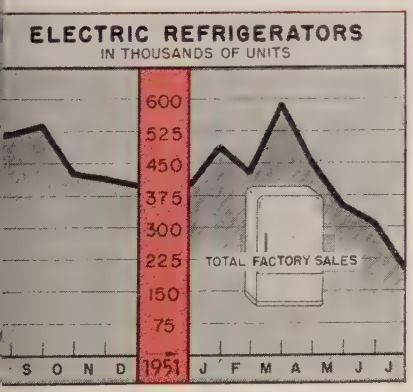
The iron and steel industry employed 4000 more people in July than in June, American Iron & Steel Institute reports. Employment was a record 678,200 persons, 35,000 more than a year ago. Though July payroll dropped almost $9 million, the seven months' payroll of $1.6 billion exceeded the payroll for all of 1946 and was 25 per cent higher than in the first seven months of 1950. Average hourly wages rose to $1.955 in July, highest this year and 21.1 cents higher than in July, 1950. Wage earners worked 3.2 hours less in July than in June.

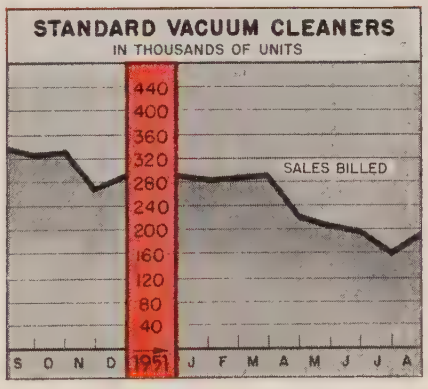
## Trends Fore and Aft . . .

Defense Production Administration, worried about half-throttle operations of radio-television plants, is trying to place additional electronics orders with that industry . . . More people saved more money last year than in 1949, says the Federal Reserve Board. Income exceeded expenditures for 61 per cent of all spending units, expenditures topped income for 32 per cent, and 7 per cent broke even . . . After a two-month decline, business failures turned up 2 per cent in August to 678. The casualty rate, seasonally adjusted, stood at 33 failures per 10,000 enterprises.

**Issue Dates of other FACTS and FIGURES Published by STEEL:**

| | | |
|---|---|---|
| Construction .....Sept.24 | Furnaces, W. Air ..Sept.17 | Radio, TV .....Aug.20 |
| Durable Goods ....Aug.6 | Gear Sales .....Sept.17 | Ranges, Elec. ....Sept.24 |
| Employ., Metalwk. .July16 | Gray Iron Castings.Sept.10 | Ranges, Gas .....Sept.24 |
| Employ., Steel ....Aug.27 | Ironers .....Sept.17 | Steel Castings ....Sept.10 |
| Fab. Struc. Steel...Sept.10 | Machine Tools ....Sept.10 | Steel Forgings ....Aug.20 |
| Foundry Equip. ..Sept.24 | Malleable Castings..Sept.10 | Steel Shipments ...Aug.27 |
| Freight Cars .....Sept.24 | Pumps, New Orders..July9 | Wages, Metalwkg...Aug.13 |
| Furnaces, Indus. ..Sept.17 | Purchasing Power...Sept.3 | Washers .....Sept.17 |




**Electric Refrigerators**
Total Factory Sales—Units

| | 1951 | 1950 | 1949 |
|---|---|---|---|
| Jan. .... | 488,607 | 375,856 | 396,329 |
| Feb. .... | 423,420 | 461,256 | 348,539 |
| Mar. .... | 591,449 | 586,293 | 382,861 |
| Apr. .... | 445,636 | 546,279 | 335,092 |
| May .... | 348,423 | 542,865 | 341,933 |
| June .... | 309,125 | 549,740 | 310,780 |
| July .... | 199,616 | 507,029 | 327,429 |
| Aug. .... | ..... | 518,359 | 314,839 |
| Sept. .... | ..... | 535,002 | 326,149 |
| Oct. .... | ..... | 420,431 | 265,575 |
| Nov. .... | ..... | 411,201 | 230,258 |
| Dec. .... | ..... | 394,268 | 272,636 |
| Total .... | ..... | 5,848,579 | 3,852,420 |

National Electrical Mfrs. Assoc.

**Standard Vacuum Cleaners**
Sales Billed—Units

| | 1951 | 1950 | 1949 |
|---|---|---|---|
| Jan. .... | 282,305 | 249,150 | 228,769 |
| Feb. .... | 261,572 | 263,515 | 241,267 |
| Mar. .... | 290,242 | 361,014 | 309,897 |
| Apr. .... | 227,216 | 292,664 | 252,656 |
| May .... | 201,983 | 278,645 | 222,850 |
| June .... | 194,548 | 250,190 | 207,354 |
| July .... | 161,002 | 279,967 | 161,920 |
| Aug. .... | 191,299 | 341,232 | 219,909 |
| Sept. .... | ..... | 327,524 | 250,036 |
| Oct. .... | ..... | 331,445 | 272,520 |
| Nov. .... | ..... | 265,310 | 253,516 |
| Dec. .... | ..... | 288,756 | 265,513 |
| Total ... | ..... | 3,529,412 | 2,886,514 |

Vacuum Cleaner Mfrs. Assn.

**SAVE STOCKROOM TIME**

Requisitions to your stockroom for Pheoll Fasteners can be filled in less time. Boxes, kegs and packages are plainly marked with sizes clearly indicated for rapid identification. Pheoll's quality products handle easily, can be quickly counted or transferred to bins or assembly line trucks.

**REDUCE ASSEMBLY TIME**

Workmen gain time assembling with Pheoll screws, bolts, and nuts because they are accurately threaded, drive easily, seat rapidly, grip tighter—assuring stronger assemblies, easier inspection and less rejects.

**IMPROVE YOUR PRODUCT APPEARANCE**

The uniform quality of Pheoll Fasteners improves your product appearance. Precision slotted and finished heads, cleanly chamfered nuts, prevent marred surfaces and add to your product's sales appeal. Write for Pheoll literature and price list.

*Save Costs...Increase Profits with these Pheoll Fasteners*

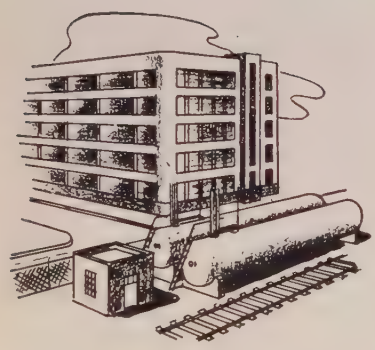
ASK ABOUT PHEOLL Machine Screws† Machine Bolts • Special Screws and Bolts Cap Screws • Machine Screw Nuts • Wood Screws† • Thumb Screws • Brass Washers Stove Bolts†

†Furnished in slotted and Phillips Recessed Head Types

Pheoll MANUFACTURING COMPANY
5700 ROOSEVELT ROAD
CHICAGO 50, ILLINOIS
SCREWS • BOLTS • NUTS
Industrial Fasteners and Holding Devices

# Philgas*

## . . . A Superior LP-Gas Proven in Service



### FOR INDUSTRIES

Leading industries use Phillips *66* Philgas successfully for heat treating, mold drying, core baking, ceramic firing and many, many other operations. Automatic Philgas systems assure constant furnace temperatures and atmospheres; constant pressures, high or low.

### FOR UTILITIES

Many progressive utilities use Phillips *66* Philgas to augment natural or manufactured gas. High-quality Philgas is uniform in thermal value and gravity, and is free from harmful contaminants. Automatic operation cuts down on overhead.

**Philgas is the Phillips Petroleum Company brand name for its high quality propane-butane LP-Gas or bottle gas.*

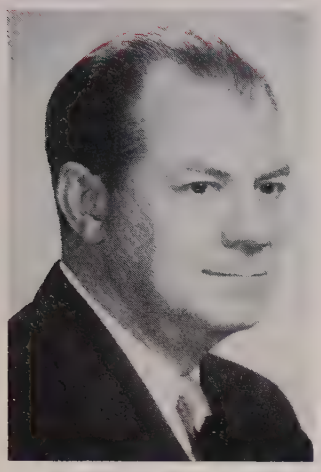
Phillips 66

**PHILLIPS PETROLEUM COMPANY**

Sales Department Bartlesville, Oklahoma

Offices located in Amarillo, Tex., Atlanta, Ga., Chicago, Ill., Denver, Colo., Des Moines, Ia., Pontiac, Mich., Indianapolis, Ind., Kansas City, Mo., Milwaukee, Wis., Minneapolis, Minn., New York, N. Y., Omaha, Nebr., Raleigh, N. C., St. Louis, Mo., Tulsa, Okla., Wichita, Kan.

# Men of Industry



WARDEN F. WILSON
*. . . Donegal Mfg. president-gen. mgr.*

JOHN F. SPAULDING
*. . . Black & Decker sales mgr.*

LAWRENCE WILKINSON
*. . . a V. P. of Continental Can*

**Warden F. Wilson** was elected president, general manager and a director of **Donegal Mfg. Corp.**, Marietta, Pa. Formerly general sales manager of Lebanon Steel Foundry, he has been active for a number of years in the institution of research and product development activities.

**W. R. Meikle** has joined **National Radiator Co.**, Johnstown, Pa., to be in charge of the heavy steel defense production of its steel boiler plant at Middletown, Pa. He was vice president, Viking Instrument Co., and from 1940 to 1948 was production manager in the steel boiler department of Burnham Corp.

**Emmett G. Gardner** has joined **Bostitch Inc.**, Westerly, R. I., as executive vice president. He formerly was executive vice president of Nesco Inc. The company elected as vice presidents **John E. Scully**, in charge of finance; **Kenneth E. Joy**, in charge of sales; and **John B. Wynne**, in charge of production.

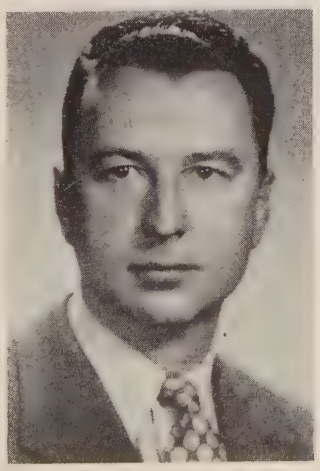
**W. Cordes Snyder Jr.**, vice president of Koppers Co. Inc. and manager of its metallurgical department, joins **Blaw-Knox Co.**, Pittsburgh, on or about Nov. 1 as president and chief executive officer. He previously was a vice president of Blaw-Knox and manager of its Lewis Foundry & Machine Division.

**Frederic B. Powers** was elected president of **Rawlplug Co. Inc.**, New York. He succeeds the late **Winthrop R. Howard**, founder and president of Rawlplug since its inception in 1921. Mr. Powers was vice president and secretary, and also a director.

**John F. Spaulding** was appointed sales manager of **Black & Decker Mfg. Co.**, Towson, Md. He joined the company in 1926. Since 1931 he has been manager of the Buffalo branch. Mr. Spaulding succeeds **Glen H. Treslar**, recently promoted to vice president in charge of sales.

**R. L. Logue** was appointed chief body engineer, and **D. H. Tillotson**, chief engine and chassis engineer at **Kaiser-Frazer Corp.**, Willow Run, Mich. Mr. Logue was production engineer and Mr. Tillotson, chief draftsman.

**Mel E. Maurer** was elected vice president in charge of manufacturing for **Nesco Inc.**, Chicago. He will direct all manufacturing, purchasing and engineering. Previously Mr. Maurer was manager of manufacturing-engineering for Hotpoint Inc. for four years, and before that was assistant works manager, Lockheed Aircraft.



MEL E. MAURER
*. . . V. P.-mfg. at Nesco*

**Continental Can Co.**, New York, elected **Lawrence Wilkinson** a vice president. He resigned his post as director of the New York Civil Defense Commission to accept the post at Continental, where he will be assistant to the chairman of the board.

**J. Peter Brehm** was named district sales representative in the San Francisco area for Woven Wire Fabrics Division, **John A. Roebling's Sons Co.** He was a member of the division's Los Angeles sales force.

**Kenneth E. Reynolds** was appointed head of a new defense contract department established by **Bausch & Lomb Optical Co.**, Rochester, N. Y. He is succeeded by **Herbert J. Mossien** as head of the analytical instrument sales department. **William R. Saunders** takes over Mr. Mossien's position of assistant head of the company's educational sales department.

**Harry F. Allen** joined the sales force of **Hanson-Van Winkle-Munning Co.**, Matawan, N. J. He will have headquarters in Cleveland.

**Kaiser Aluminum & Chemical Corp.**, Oakland, Calif., elected **Edgar F. Kaiser** a member of the board of directors, and **William P. B. Marks**, vice president and secretary. They fill vacancies created by the death of **G. G. Sherwood.** Mr. Kaiser is president of Kaiser-Frazer Corp. Mr. Marks is vice president in charge of the legal department of Henry J. Kaiser Co.

**Sven Vaule**, consulting management engineer, who temporarily discontinued practice in 1949 to become

works manager at **Saco-Lowell Shops'** Biddeford, Me., plant, is resuming general practice. His office will be at One Mitchell Rd., South Portland, Me.

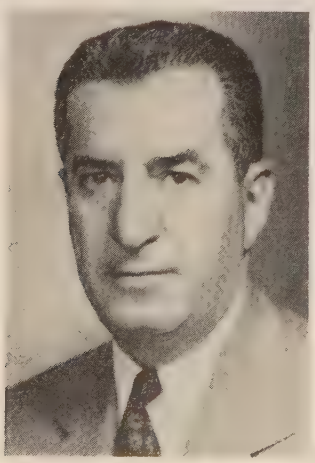
**Ray Smith,** metallurgist, joined the sales staff of **KSM Products Inc.,** Merchantville, N. J., as junior engineer. He will receive in-plant training before being assigned to a sales district. Mr. Smith formerly was with Joseph T. Ryerson & Son.

**James A. Crooks** was named manager of commercial research, **Bethlehem Pacific Coast Steel Corp.,** San Francisco. He succeeds **O. P. Walker,** resigned.

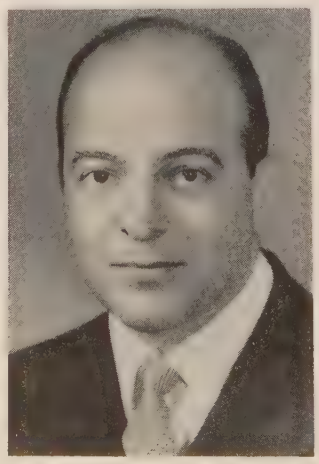
**Henry Collins** was appointed office manager of **Arthur Colton Co.'s** new plant in Paducah, Ky. The Colton company is a division of Snyder Tool & Engineering Co. Its Paducah plant was formerly Ace Mfg. Co., and has been specially re-equipped for production of precision punches and dies.

**Charles E. Wilson,** sales vice president, **Worthington Pump & Machinery Corp.,** Harrison, N. J., will retire from that position Oct. 1 but will continue in a consulting capacity on sales problems at Worthington's offices in Los Angeles, San Francisco, Seattle and Salt Lake City.

**Luria Bros. & Co. Inc.,** Philadelphia, elected **Joel Claster** president to succeed the late **A. L. Luria. Ralph E. Ablon** was named executive vice president and **D. Hays Solis-Cohen** was added to the board of directors. **Herbert L. Luria** continues as treasurer. Mr. Claster, formerly executive vice president, joined Luria Bros. in 1919, and Mr. Ablon, formerly vice president, joined the firm in 1939. D. Hays Solis-Cohen is a partner in the law firm of Wolf, Block, Schorr & Solis-Cohen, Philadelphia.



JOEL CLASTER
*. . . new president of Luria Bros.*



RALPH E. ABLON
*. . . exec. V. P. of Luria Bros.*

CLYDE WILLIAMS
*. . . new V. P. at Temco*

JOHN A. MAXWELL JR.
*. . . new V. P. at Temco*

**Texas Engineering & Mfg. Co.,** Dallas, elected **Clyde Williams** vice president-comptroller, and **John A. Maxwell Jr.,** vice president - manufacturing. Mr. Williams was secretary and assistant treasurer, and Mr. Maxwell continues as works manager.

**Richard A. Flinn,** assistant chief metallurgist in **American Brake Shoe Co.'s** research and development center, will accept an associate professorship of product engineering and metallurgical engineering at the University of Michigan. He will also be in charge of the university's experimental foundry. Mr. Flinn will leave American Brake Shoe near the end of this year, but it is expected he will retain connections with the company as a consultant.

**David J. Gemmell** has joined **Hodell Chain Co.,** division of National Screw & Mfg. Co., as assistant to the president. He will have headquarters at the company's Cleveland offices and will also work with other cities in developing sales to hardware and mill supply distributors. He had been with Cleveland Chain & Mfg. Co. from 1929 until he resigned recently as executive vice president and director of sales.

**Dr. W. C. Rueckel** has joined the staff of **Kaiser Engineers Division,** Henry J. Kaiser Co., with offices in Oakland, Calif. He will be manager of the chemical division. Dr. Rueckel is a former vice president of Koppers Co. in the engineering and construction division.

**Arthur N. Dugan,** vice president, **National Bearing Division,** American Brake Shoe Co., New York, has retired after 37 years' service, but will continue his connection with the company as a consultant. **Pearce D. Smith,** sales representative for National Bearing, has transferred from Pittsburgh to company headquarters in New York.

**J. W. Gooch** was appointed assistant plant manager in charge of manufacturing operations in production of band tools for **DoAll Co.,** Des Plaines, Ill. He was with DoAll from 1940 to 1948 as general manager in charge of saw manufacturing. Since then he has been with Leader Electric Co.

**Martin L. Killgallon,** superintendent of Division I of **Oliver Iron & Steel Corp.,** Pittsburgh, was named plant manager of the Berry Division in Corinth, Miss. **William N. Boyd** becomes superintendent of Division I and **Walter Most,** acting superintendent of Division II.

**Harold C. Weingartner,** chief engineer, was elected vice president and general manager of the equipment division of **National Research Corp.,** Cambridge, Mass.

**Allegheny Ludlum Steel Corp.,** Pittsburgh, appointed **John E. Groves** director of industrial relations and

# Ever see such a fast-moving assembly line?

It is amazing how fast the automotive industry has moved.

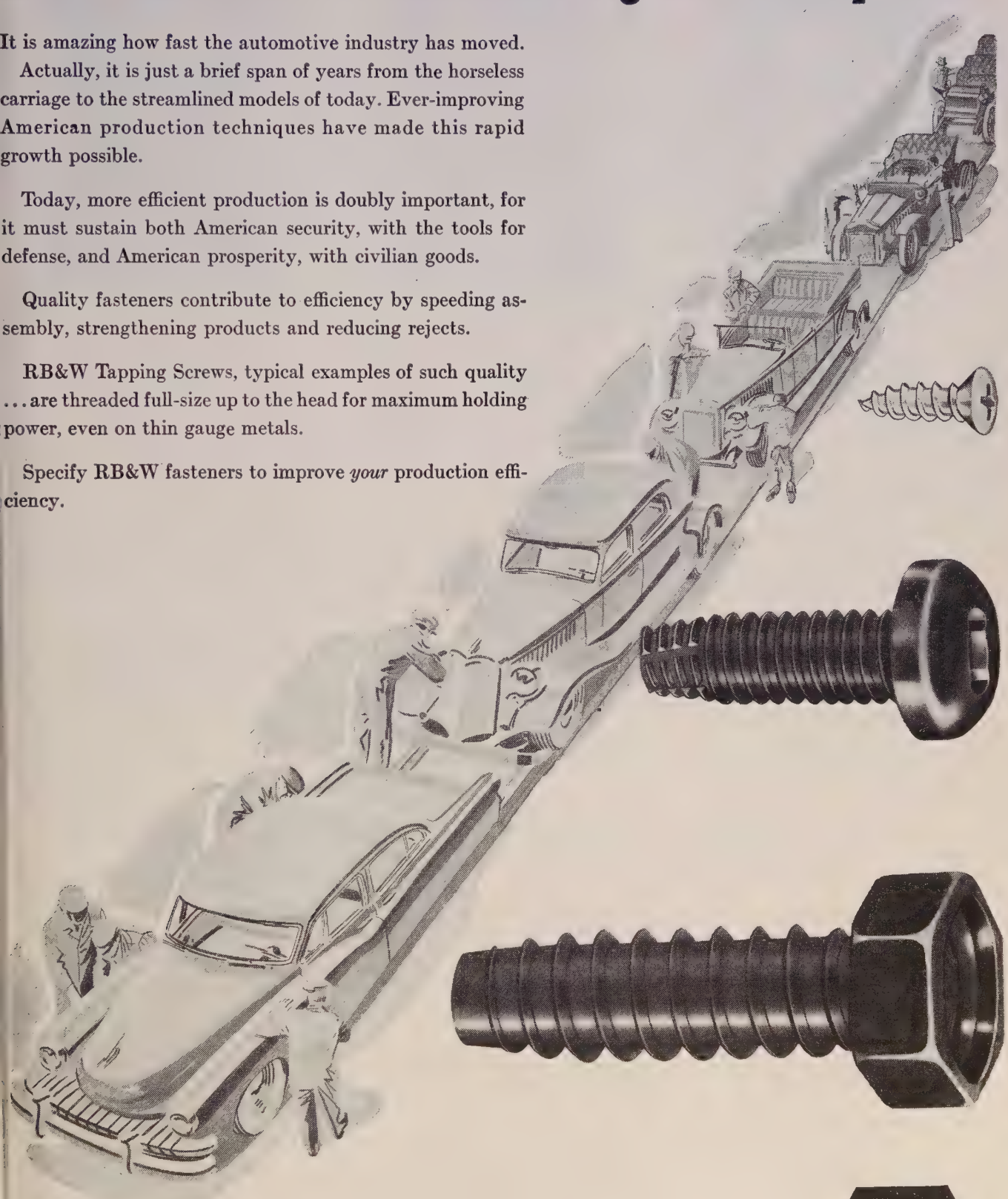
Actually, it is just a brief span of years from the horseless carriage to the streamlined models of today. Ever-improving American production techniques have made this rapid growth possible.

Today, more efficient production is doubly important, for it must sustain both American security, with the tools for defense, and American prosperity, with civilian goods.

Quality fasteners contribute to efficiency by speeding assembly, strengthening products and reducing rejects.

RB&W Tapping Screws, typical examples of such quality ... are threaded full-size up to the head for maximum holding power, even on thin gauge metals.

Specify RB&W fasteners to improve *your* production efficiency.



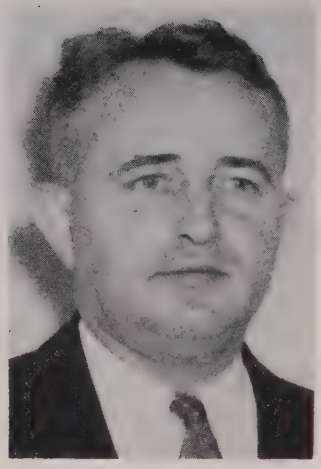
**RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY**

RB&W
THE COMPLETE QUALITY LINE

Plants at: Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices at: Philadelphia, Detroit, Chicago, Dallas, Oakland. Sales agents at: Portland, Seattle.

**106 YEARS MAKING STRONG THE THINGS THAT MAKE AMERICA STRONG**

RAYMOND T. JOYCE
*. . . manages Brooks Oil operations*



CHESTER W. BRUCE
*. . . Republic's chief engineer at Chicago*

WILBUR E. LUNGER
*. . . elected a V. P. of A.C.F.*

**Ralph L. Ostrander,** manager of labor relations. Both will have headquarters at the general offices at Brackenridge, Pa.

**Brooks Oil Co.** of Cleveland and Pittsburgh appointed **Raymond T. Joyce** manager of operations. He also is secretary. Mr. Joyce has been with Brooks Oil since 1934. In 1940 he became purchasing agent, and was elected secretary in 1946. In addition to his duties as manager of operations and secretary, Mr. Joyce will serve as chairman of the plant planning committee and the pension fund committee.

**Richard L. Bean** was appointed publicity manager, **Lockheed Aircraft Corp.,** Burbank, Calif. He replaces **Ned Root,** now affiliated with Consolidated Vultee.

**J. George Eichhorn** was appointed personnel director of **Automatic Transportation Co.,** Chicago.

**Stanley B. Elliott** was appointed vice president and general manager of **Ferro Chemical Corp.,** Cleveland.

**Chester W. Bruce** was appointed chief engineer for the Chicago district of **Republic Steel Corp.** He succeeds **Alvin A. Claassen,** retired after 34 years' service with the company. **Harold E. Berg** succeeds Mr. Bruce as assistant chief engineer.

**H. L. Larrimore** is retiring Oct. 1 as manager of inside sales, **Bliss & Laughlin Inc.,** Harvey, Ill. He will be replaced by **Roy A. Peffers,** assistant manager of inside sales, whose position will be filled by **John B. Showalter.**

**Kenneth H. Gayle Jr.,** former vice president in charge of sales, **Ingalls Iron Works Co.,** Birmingham, was elected president, a director and chief executive officer.

**Bjarne Klaussen** was elected executive vice president, **Hooker Electrochemical Co.,** Niagara Falls, N. Y. **Donald E. Springer** was appointed chief engineer, effective Oct. 1. Mr. Klaussen has been with the company since 1916 and has been vice president in charge of production of all Hooker plants since 1947.

**Wilbur E. Lunger** was elected a vice president, **American Car & Foundry Co.,** New York, reporting to **R. W. Ward,** vice president in charge of production. Mr. Lunger was formerly assistant vice president in the production department.

**G. E. Savage** was named assistant superintendent, Youngstown plant protection department, **Republic Steel Corp.**

**George E. Parker** was elected president and chief executive officer of **Columbia Steel & Shafting Co.,** Carnegie, Pa. He succeeds **E. L. Parker,** who resigned as president and was elected chairman of the board. George Parker has spent his entire business career with Columbia and its subsidiaries. Since 1947 he has been vice president in charge of operations of the Columbia plant at Carnegie.

**Ross H. Schroeder** was named manager of **Packard Motor Car Co.'s** business management department, Detroit, to succeed **John W. Raisbeck,** who assumes new responsiiblities in Packard's defense program.

## OBITUARIES...

**Ben Readman,** advertising manager, **Vickers Inc.,** Detroit, died Sept. 23 following a heart attack.

**Victor A. Menaglia,** 57, for the last 25 years district manager for **SKF Industries Inc.,** Pittsburgh, died Sept. 10 following a heart attack.

**Charles S. Amadon,** owner and general manager of **Connecticut Broach & Machine Co.,** New London, Conn., died recently.

**Daniel H. Slonaker,** 78, former president and general manager, **National Roll & Foundry Co.,** Avonmore, Pa., died Sept. 18. He had retired in 1942.

**George E. Griffith,** 70, retired general traffic manager, **Carborundum Co.,** Niagara Falls, N. Y., died Sept. 16.

**John P. Roberts,** 43, assistant general manager, service sales division, **Timken Roller Bearing Co.,** Canton, O., was killed in an automobile accident near Spruce Pine, N. C.

**C. L. Best,** 73, chairman of the board and member of the executive committee, **Caterpillar Tractor Co.,** Peoria, Ill., died Sept. 22 in San Francisco. Mr. Best was one of the founders of the company.

**Guy E. Rogers,** manager of standard building sales, **Blaw-Knox Division,** Blaw-Knox Co., Pittsburgh, died of a heart attack at Dundalk, Md.

**Newlin T. Booth,** 64, president of **Deemer Steel Casting Co.,** New Castle, Del., died Sept. 19.

**William J. Todhunter,** 77, former general superintendent of the rolling mill, South Chicago Works, United States Steel Co., and later superintendent of Inland Steel Co. at Indiana Harbor, Ind., died Sept. 9 in Australia where he went in 1922 as general superintendent of **Broken Hill Proprietary Co.** He retired two years ago.

# Production and Engineering NEWS AT A GLANCE

**PLATING ECCENTRICITIES—** Permeability or porosity of electrodeposits has become recognized as a disconcerting variable resulting in wide discrepancies in salt-spray and weathering tests of plated objects. Research Project No. 6 of the American Electroplaters' Society, aimed at the nature and effect of porosity in electrodeposits, has uncovered the variability factor and may further provide useful tools to increase the reproducibility and significance of salt-spray, outdoor exposure and other accelerated tests. Another vital AES project is No. 10 which is probing methods of disposal of plating room wastes. So far this work has concentrated on cyanide; shortly it will turn to the chromic wastes.

**SO LONG, QUIZ KIDS—**An "information searching machine" couples electronic principles of standard business machines with a new "language" of 792 characters, using photoelectric cells to read scientific information condensed on IBM cards, at a speed of 1000 cards a minute. A "question" card is placed in the machine which proceeds to scan the information cards, picking out those which give answers to the question or tell where answers may be found.

**TOOL GALLING THE TROUBLE—**Titanium alloys are proving to have a relatively low machinability rating, despite their many other attractive qualities. Rating B-1112 steel at 100, machinability of 18-8 stainless steel checks out at about 25, while titanium alloys run 15-20. Welding of chips to the cutting tool seems to be the explanation. Polishing or hard chrome plating of cutting tools, drills, taps and reamers will help. —p. 68

**SEALED IN STEEL—**Cans or "bathtubs" for shipping jet engines, while requiring substantial quantities of hot-rolled low-carbon steel plate, are figured to save the Air Force over $8 million annually by protecting the engines from damage in shipping and eliminating frequent inspections to guard against rust and corrosion when engines were packed in wood cases. The containers utilize rolled flanges and rubber O-ring seals, and are slightly pressurized. Engines are rubber mounted therein, can withstand total immersion in water or 36-inch drops with no damage.

**STEP ON IT—AND BOUNCE—**After complaints from machine operators that concrete floors were too slippery and hard on the feet, the management of an eastern plant decided to resurface the area with a new compound consisting of a water-setting cement to which is added about 10 per cent of neoprene latex. The composition was spread by trowel to a thickness of ¼-inch right over the old concrete and was ready for service in two days. After 2½ years of rough service the resilient floor still has good nonskid qualities, even where oil and water had been spilled. Workmen say they feel safer walking on the composition and do not suffer from tired feet at the end of the day. No wearing through, chipping, cracking or separation of the material, either.

**QUENCHING AN EXACT SCIENCE—** In determining the proper temperature for hot oil quenching, the metallurgist considering martempering as a means of reducing distortion in heat treated parts may be too prone to experiment with temperatures on the high side, thereby not realizing satisfactory hardness. A better approach is to start at around 200° F and progressively try higher temperatures to determine the maximum giving the required hardness, and then evaluating the reduction in distortion and residual stresses obtained. Good agitation of the quench is vital. —p. 64

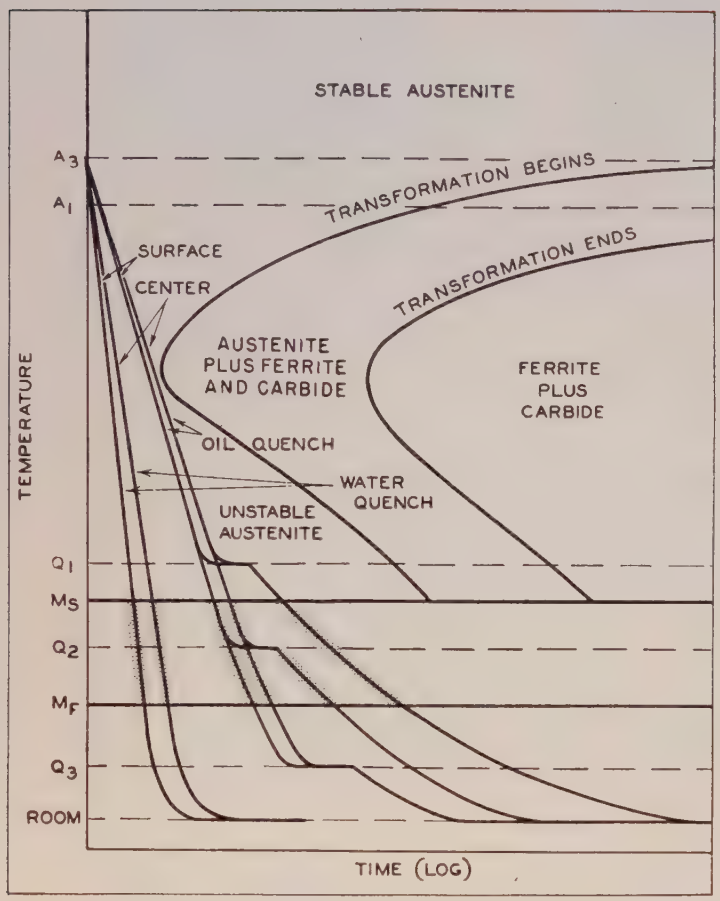
**GRINDING OIL FOR BROACHING—** In the early period of turbojet engine production, carbon tetrachloride was added to the sulphurized cutting oil used by some plants in broaching the fir-tree slots holding buckets in the high-alloy turbine disk or "hot wheel". The expedient was used to improve the finish on the slots which is extremely critical. However, carbon tet fumes set up a health hazard, the chemical is expensive and difficult to maintain because of rapid evaporation. A "hard" acting grinding oil with the maximum effective sulphur proved a better choice and no additive was required.

**SOFTENING TO SAW—**Friction sawing of many sizes of steel tubing can be carried out with ten times the speed of conventional or low-speed sawing. However, it is limited to certain wall thicknesses per given diameter. Principal of the friction band is similar to the dry abrasive cutoff wheel, both depending upon exceptionally high speed to generate heat to soften the material directly in front of the cutting edge. Friction sawing speeds range between 3000 and 10,000 fpm. —p. 70

**NITROGEN TO SAVE NICKEL—**An interesting sidelight on the element nitrogen in respect to its ability to promote austenite formation is pointed up by a leading metallurgical engineer. Advantage is taken of the fact to conserve nickel in the production of austenitic stainless steels. The addition of some manganese and nitrogen can save as much as 2-3 per cent nickel. Such steels have excellent strength for structural purposes. Recommended maximum nitrogen content is 0.10 per cent and while some mills are successful in using 0.15 per cent there is danger of gassy heats above this amount. A ferro-chromium alloy containing nitrogen is used to make the addition. —A.H.A.

Metalworking Outlook—p. 27 Market Outlook—p. 139

# HOT OIL QUENCHING Expands Use



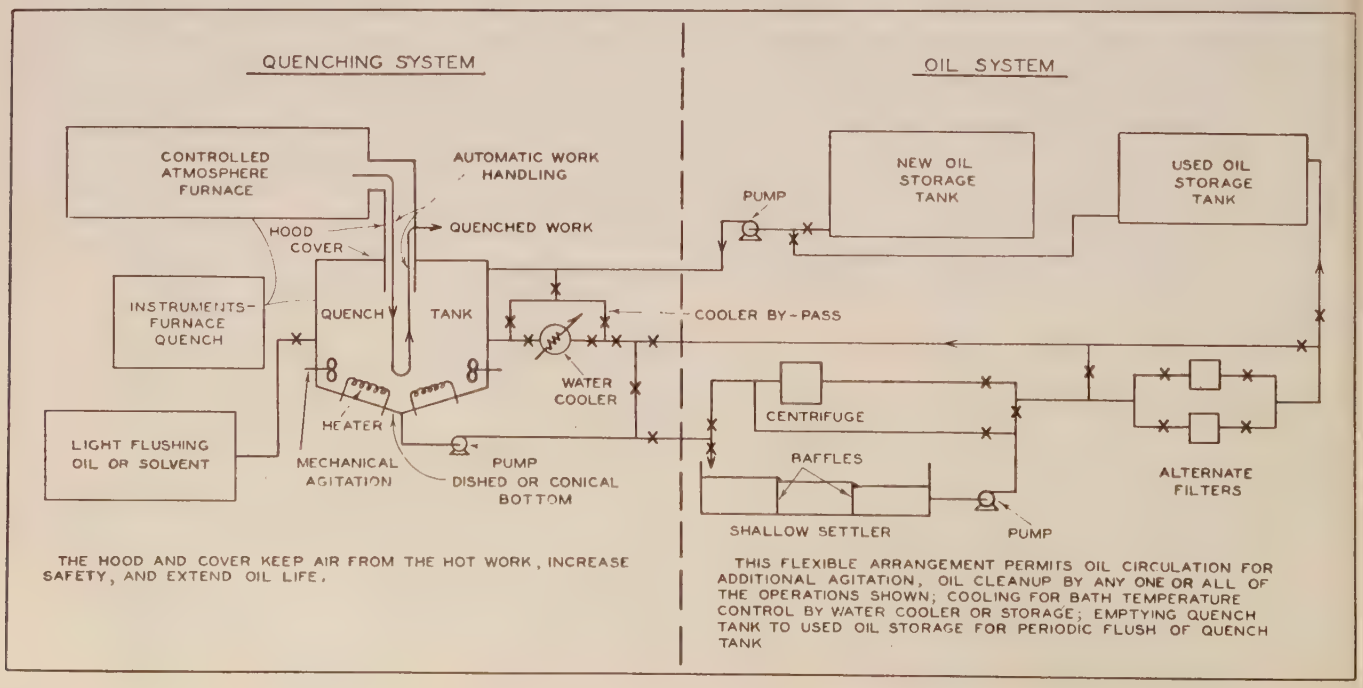

ONE of the most interesting methods of heat treating being presently used is a hot quenching process known as hot oil quenching or marquenching. The process involves quenching hot steel in mineral oil at 200-400°F, holding for temperature equalization and then cooling to ordinary temperatures, usually in air.

While present commercial use of hot oil quenching is limited primarily to the automotive, ball bearing and tool industries, it is expected that the use will spread in the near future to aeronautical and other industries. As a matter of economics, hot oil quenching is particularly important today because it makes possible some substitution of the more plentiful carbon steels for the relatively scarce high alloy steels.

**Quenching Processes** — Main types of quenching processes are conventional quenching and hot quenching. Conventional quenching involves rapid, continuous cooling to 60-120°F. Hot quenching, as usually applied, involves stopping the cooling at a tempera-

Fig. 1 (left)—Cooling curves for hot oil quenching. Curves for conventional water quenching are shown for comparison purposes

Fig. 2 (below)—Hot oil quenching system, one of the many possible variations in a well-appointed, continuous system. Equipment required depends on the exact service and installation size


QUENCHING SYSTEM
OIL SYSTEM
CONTROLLED ATMOSPHERE FURNACE
AUTOMATIC WORK HANDLING
HOOD COVER
QUENCHED WORK
INSTRUMENTS-FURNACE QUENCH
QUENCH TANK
HEATER
LIGHT FLUSHING OIL OR SOLVENT
MECHANICAL AGITATION
PUMP
DISHED OR CONICAL BOTTOM
WATER COOLER
COOLER BY-PASS
PUMP
NEW OIL STORAGE TANK
USED OIL STORAGE TANK
CENTRIFUGE
BAFFLES
SHALLOW SETTLER
PUMP
ALTERNATE FILTERS
THE HOOD AND COVER KEEP AIR FROM THE HOT WORK, INCREASE SAFETY, AND EXTEND OIL LIFE.
THIS FLEXIBLE ARRANGEMENT PERMITS OIL CIRCULATION FOR ADDITIONAL AGITATION, OIL CLEANUP BY ANY ONE OR ALL OF THE OPERATIONS SHOWN; COOLING FOR BATH TEMPERATURE CONTROL BY WATER COOLER OR STORAGE; EMPTYING QUENCH TANK TO USED OIL STORAGE FOR PERIODIC FLUSH OF QUENCH TANK

# f Carbon Steels

By J. H. GREENE
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ture in or above the martensite transformation range, which is lower than the temperatures at which austenite transforms to pearlite.

Transformation then occurs isothermally or during subsequent cooling, being determined by the holding time at quenching temperature before further cooling. Hot quenches are used where conventional quenches do not permit sufficient reduction in distortion and residual stresses or for obtaining steels of special properties. Martempering, austempering, and modifications of these processes are hot quenches.

In martempering, steel is cooled rapidly to a temperature in the vicinity of Ms, usually slightly above Ms; the work is held long enough to equalize temperature throughout the section but not long enough for bainite formation; and finally the part is very slowly cooled, usually in air, through the martensite formation range. Mf temperatures are not well established but are believed to be about 150-300°F below Ms.

In austempering, steel is cooled rapidly to and held at a constant subcritical temperature long enough for a completely bainitic structure to form, usually followed by water cooling. Temperatures in the order of 500-800°F are involved. Depending on the required product characteristics and steels used, several modifications of martempering and austempering processes are being successfully used in industry. The hot oil quenching process is one modification which will be described later. All of these modified processes depend on and may readily be understood from the principles presented above.

**Quenching Media**—Aside from the fact that it must give the required hardness without excessive distortion, the requirements of a satisfactory quenching medium are shown qualitatively in the accompanying tabulation. A comparison of these factors for quenching media in common use is presented. Cooling in still air is usually employed only for high alloy steels in complicated or massive sections. The poor heat transfer properties of gases obviate their use for rapid cooling, which is necessary in hot quenching, as it is generally uneconomical to provide large volumes of cool gas to metal surfaces.

The more favorable thermal properties of liquids permit satisfactory cooling rates with a variety of these media. It is important to remove gases, primarily from vaporization of the medium but also entering on the work and in the liquid, from the surface of the work, since gases hinder cooling markedly. Mechanical agitation and circulation of the liquid against the work are the best means of accomplishing this, and at the same time the resulting uniform bath temperature gives uniform hardness and reduces the localized overheating of the medium with gas evolution.

**Drastic Cooling Rates**—Water or aqueous solutions furnish the drastic cooling rates, approaching the theoretical maximum, required for hardening plain carbon or low alloy steels of low or medium carbon content and of small grain size used for pieces of low mass and simple shape. Water provides the additional advantages of cleanliness, ease of handling, and presents no fire hazard. It should be mentioned that low-carbon steels of fine grain size possess such low hardenability that they cannot be properly hardened by quenching.

While oil will not harden water-hardening grades of steel, it is widely used where a water quench is too drastic and provides uniform quenching for a wide

## Summary of Advantages and Disadvantages of Hot Oil Quenching

Hot oil quenching, compared to conventional quenching, requires more equipment, greater safety precautions, cleaning of the work during the latter stages of oil life and is limited with respect to the size, shape, and types of steel that can be quenched to full hardness. Unless distortion or residual stresses are problems, it may not be desirable to use a hot oil quench.

The process is, however, applicable to a wide range of important steels. For the many cases in which satisfactory hardness can be obtained, it gives improved control of dimensional changes by reducing or eliminating distortion, and increased service life and load-carrying capacity of the parts results from reduced residual stresses.

Production-wise, hot oil quenching greatly increases the output per furnace due to: Elimination or reduction of finishing operations; large reductions in rejects; and expediting subsequent assembly. Reduced tolerances before hot quenching may also be possible.

range of alloy steels. In the early stages of cooling, the vapor-blanket and bubble periods, the cooling rate in oil increases while it slows markedly in the final stages—this indicates that for the steels for which it is used, oil comes the closest to meeting the cooling rate requirements necessary for an ideal quenching medium.

Cooling rate obtained with oil may be increased not only by agitation but also by careful compounding with selected high quality fatty materials. These steels, called deep or oil-hardening steels, contain appreciable alloy content which increases hardenability and makes them suitable for thicker, more complicated parts in which the reduction of residual stresses and distortion is important. A properly selected oil for conventional quenching at about 100°F will have the advantages shown in the table.

**More Stresses**—Temperature gradient from surface to center of a part increases with cooling rate. This explains why parts quenched in water are subject to more residual stresses, cracking, and distortion. In addition to the transformation stress resulting from the increase in volume when martensite forms from austenite at the surface, the thermal gradient delays the center transformation and new stresses are then set up when the center transforms. Under these conditions the center is trapped in the hard martensite case already formed at the surface. In oil quenching the thermal gradient is greatly reduced, and the surface and center of the part transform at more nearly the same time, reducing cracking, distortion, and residual stresses.

On the practical side, quench bath temperature variation is much less critical with oil than with water. This simplifies control and assures a product of uniform quality.

Special quenching methods for very close tolerances include cold die quenching presses. In the former method the part contacts a cooled solid surface, while in the second method the piece is held to eliminate distortion while it is quenched with a liquid medium.

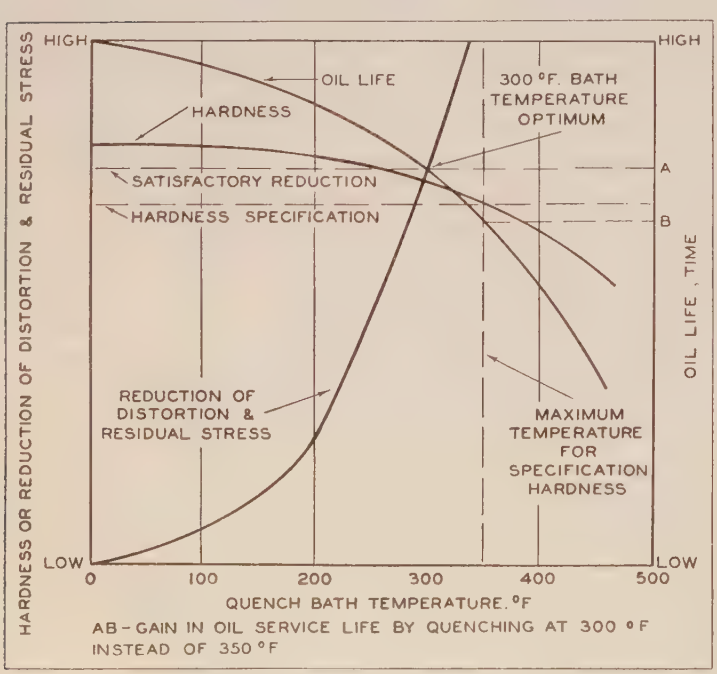


Fig. 3—Optimum hot oil quenching temperature

**Hot Oil Quenching**—Hot oil quenching involves quenching steel into mineral oil at 200-400°F and holding for temperature equalization, followed by very slow cooling in air to room temperature. Depending on the Ms temperature of the steel, three basically different types of quenching are involved, as shown in Fig. 1. When the bath temperature is near or slightly above Ms ($Q_1$) true martempering is obtained, provided the holding time does not permit transformation to lower bainite. When the bath temperature falls within the martensite formation range ($Q_2$), a modified martempering operation results, since martensite formation has not been completed.

Depending on the bath temperature, a good proportion of the advantages of martempering can result, since much of the steel is still in the plastic austenitic condition, allowing stress relief and reducing distortion, cracking, and retained austenite. Additional advantages are gained:

1. Reduction in thermal gradient in the piece above the martensite range (as in martempering) due to slower cooling, and
2. bainite will not form during holding for temperature equalization, as is possible in martempering. This is an advantage where thicker sections are involved and where the hardness required will tolerate no bainite.

**Like Martempering**—If the bath temperature is below the martensite range ($Q_3$), the reduction in the thermal gradient in the piece above and through the martensite range and the freedom from possible bainite formation are still worthwhile advantages, promoting uniform hardness in the quenched work and obtaining some of the advantages of martempering.

Thus it is readily seen that constant temperature hot oil quenching may be equivalent to martempering. If martempering does not result, differing degrees of the advantages of martempering may nevertheless be obtained, along with the additional advantage of freedom from possible bainite formation. All of these quenches are definitely advantageous when used for suitable steels. Specific results with a given steel depend especially on factors affecting Ms and also on the steel used, the part quenched, austenitizing conditions, and the quenching operation—its conditions and their control, the oil medium, and the equipment employed. The importance of final tempering is clear.

**Systems Readily Converted**—Hot oil quenching may be conducted on a large or small scale in a variety of types of equipment, including continuous, batch and fixture units. It is possible that many existing quenching systems can be readily converted to hot oil quenching. Fig. 2 illustrates some of the many possible variations in a well-appointed, continuous, hot quenching system. The particular equipment required will depend on the exact service and installation size.

**Time, Temperature, Agitation**—For a given steel

SUMMARIZED COMPARISON OF QUENCHING MEDIA

| Properties | Ideal Requirements | Water and Water solutions | Mineral Oil[1] | Air |
|---|---|---|---|---|
| . Cooling rate | Must cool at the desired rate | Fastest | Intermediate | Slowest |
| a. At knee of S-curve | Minimum rate must equal critical cooling velocity | Very fast | Fast enough for many steels | Too slow for any but special high alloy steels |
| b. Below knee of S-curve | Cool very slowly | Very fast | Cools much more slowly than water | Cools very slowly |
| . Effect of temperature on cooling rate | No significant decrease as temperature rises—increase is desirable | Water cooling rate decreases rapidly as temperature rises; salts are better | Cooling rate improves as temperature rises | Very little effect; still very slow |
| . Safety | Safe | Water is safe but some salts explode and caustic is dangerous | Some fire hazard but low with proper oil and precautions | Safe |
| . Service life | Long | Caustic solution must be replaced often | Satisfactory with proper precautions | No problem |
| . Initial cost | Low | Generally consistent with the results obtained — salt solutions and air currents require special equipment | | |
| . Cleaning quenched work | Easy | Salts require a water wash | Satisfactory methods are available | No problem |
| . Ease of handling | Easy | Difficulty with salts | Easy | No problem in still air |
| . Corrosion | None | Salts are corrosive | None | None |
| . Drag-out and evaporation loss | Low | Usually low | Low with proper oil | No problem |
| . Availability | Good | Good | Good | Good |
| . Effect on properties of quenched metal | None | None | None | None |

[1]Animal, fish, and vegetable oils are much less widely used than in the past due to inferior odor and oxidation quality.

art, austenitized under definite conditions, the most important hot quenching variables directly affecting product quality are time, temperature, and agitation.

If quenching time is too short, full equalization of mperature in the work will not be obtained. If a ece is quenched too long, production is slowed and, martempering, bainite may be formed. Optimum enching time is necessary to meet uniformly prodt physicals and minimize distortion, cracks, residl stresses and retained austenite. Hot quenching nes of 8 minutes maximum are involved in present mmercial practice.

The optimum quenching temperature, which must t be so high that satisfactory hardness is not obined, is a compromise between oil life and reducn of distortion and cracking. These relations are esented for a hypothetical case in Fig. 3. While tisfactory hardness is not obtained at bath temratures over 350°F, a satisfactory reduction of distion and residual stress is obtained at 300°F, pertting a substantial gain in oil service life by quenchg at 300°F (increment AB). Present commercial actice indicates maximum temperatures required to about 400°F. The importance of temperature conl for uniform product hardness is acknowledged commercial practice, being considered good if the th is automatically controlled to within ±5°F. od mechanical agitation and adequate circulation es and cooling facilities are very effective for conlling temperature.

**Start at 200° F**—It is natural for the metallurgist, o considers martempering as the primary means reducing distortion, to experiment with tempera- es too high for hot quenching with the result that isfactory hardness is not obtained. A preferred proach would be to start at about 200°F and prossively try higher temperatures to determine the ximum temperature giving the required hardness l then evaluating the reduction in distortion and idual stresses obtained. Good agitation is a vital necessity to the success of such experiments.

Good agitation is a prime requirement for uniform product quality, especially hardness. The bath should be agitated constantly during quenching to assure high oil velocities past the work surface as has already been emphasized. Agitation may be provided by mechanical means or by circulation, preferably by both methods, and is importantly related to the tank geometry.

**Finishing**—Six hours of air cooling is generally sufficent to complete the martensite transformation in the quenched part. In comparison to the advantages resulting from hot oil quenching, the necessity for cleaning from the pieces the deposits of oxidized material from the used oil has been considered a minor inconvenience. Cleaning methods used include spraying the work with an oil solvent followed by an alkaline spray, trisodium, phosphate type sprays, and hot water rinsing to float off the oil. Where it is safe and adequate ventilation is available, kerosene or safety naphtha washing affords one of the best cleaning methods. In all cases, any carbon remaining on the work is removed by conventional tempering for recovery of toughness and ductility, already described, at 300-350°F for 1-2 hours per inch of thickness.

## Battery Power Restored

Gould-National Batteries Inc. offers two-page, 8½ x 11-inch data sheets on how to return to full service motive power storage batteries which have lost capacity due to sulphation. This condition is the formation of lead sulphate on the positive and negative plates due to continued undercharging while in use, or prolonged idleness without charge.

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# Experience Growing in Forming

## Quick surface oxidation plus tendency to gall and seize require care in hot forming and annealing, along with proper selection of lubricants in drawing, machining and grinding

By JAMES McELGIN
E. F. Houghton & Co., Philadelphia

FORMING and machining of titanium alloys constitute almost unexplored fields and give rise to much speculation over the best methods to use. Because entire production of the metal in 1950 was only 60 tons, there has not been much opportunity for collecting data and experience.

The writer's company has made a study of heat treatment, cold forming and machining characteristics because of this early interest in titanium alloys and their potential uses. From data already published there are certain facts fairly well established about working of titanium alloys (STEEL, Jan. 8, p. 54).

For example, the titanium alloys have a high oxidation resistance at temperatures up to 1400°F. The medium temperature creep strength is excellent. There is practically no creep at 600°F under a stress of 25,000 psi and a creep rate of 0.00012 per cent per hour at 1000°F under a stress of 2000 psi.

**Rate Below Stainless Steels**—Titanium alloys can be forged, hot rolled or welded readily. However, machinability characteristics are low, being between the austenitic stainless steels and the jet engine superalloys in this respect.

Cold forming properties of some of the titanium alloys also are poor, necessitating forming in a heated condition similar to the practices used for forming magnesium and 75S-2 aluminum alloy.

Forging practice has been outlined, with emphasis on the narrow temperature range. The alloys are heated to 1800°F, but forging must stop when temperature falls to 1600°F. This means a minimum loss of time between heating and forging, or else reheating in order to complete the forging operation. Above 1850°F there is a rapid absorption of nitrogen and oxygen at the surface of the metal will produce a hardened case structure. If the forging is continued at temperatures below 1600°F, there is a serious danger of cracking.

Some scale is produced on the titanium alloys during the heating for forging. It tends to adhere to the forging dies and must be removed by scraping or wire brushing between forging operations.

**Oxide Layer Must Be Avoided** — Recommended practice for annealing is to heat at 1300-1400°F for 1 hour for forgings, 15 minutes for sheets, using air furnaces. Inert atmospheres such as argon or helium have been used to prevent the formation of the hard oxidized surface layer which is produced when heating in air.

There would appear to be no difficulty in salt bat annealing at 1350°F. Salt prevents surface attack The time required to anneal in salt is less than i air—45 minutes for forgings, 10 minutes for sheets A limited amount of experimental work has alread been annealed in molten salt, with no hard oxidize surface layer resulting.

Titanium and its alloys can be stress relieved b heating at 550°F in air furnaces. A treatment o one hour is recommended for forgings and 15 min utes for sheet stock. The stress relief anneal of col worked titanium will increase the minimum bend ra dius and prevent cracking.

Surface hardening is important for titanium an titanium alloys since they tend to gall, seize or col weld when used in applications where there is an rubbing or wearing action. It is difficult to preven some oxygen pickup when hot working the alloys As a consequence, some surface hardening occurs The alloys can be surfaced hardened to a depth o 0.025-inch by heating in air at 1700-1900°F for on hour.

**E. P. Lubricants for Drawing**—It has already bee observed that titanium alloy sheets have formin characteristics somewhat poorer than ¾-hard stain less steel (302 or 304). Slow rate of strain has bee found advantageous because it permits a greate plastic deformation without rupture. For shallo draws or simple brake bending or forming at roo temperature, a highly concentrated extreme pressur type of drawing lubricant with polar additives is re ommended.

For deep or intricate drawing operations whe there is any appreciable stretching of the metal, it advisable to use hot forming practices such as a used for magnesium or 75S-T aluminum. It is re ommended that, on these applications, the dies an workpiece be heated to 550-600° F and that drawin lubricants be used.

It is apparent that a phosphate film on the surfa of titanium alloy blanks will reduce the danger welding to the die. The blank may be immersed f a few minutes in a standard phosphating bath befo heating. If more than one draw is required, a stre relief anneal at 550°F for 15 minutes is recommend between draws. If hot forming practices are e ployed, this stress relieving will occur during t heating of the partially drawn shape prior to t second drawing operation.

Investigation at E. F. Houghton has confirmed t

# lachining Titanium Alloys

latively low machinability rating of titanium alloys. ased on a rating of 100 for B-1112 steel, 18-8 stain-ss has a machinability rating of 25, while titanium id titanium alloys are in the 15 to 20 range.

**Chips Weld to Tools**—Titanium has a tendency to et a mating metallic surface under conditions of gh pressure. This is the cause of the greatest dif-culty experienced in machining—welding of the ips to the cutting tool. Drilling and tapping are fficult because of this chip welding which results a galling of the tool. When external threading, is advisable to mill or chase in a lathe. Should es be used to cut the threads, the tendency of this etal to weld to the die will be apparent.

When high-speed steel tooling is used, it is rec-mmended that the finish grind of the tool be done th a fine grit wheel followed by polishing. This ll reduce the tendency for chip welding. Hard rome plating of high-speed steel tools, especially ills, taps and reamers, will tend to prevent chip elding and subsequent galling.

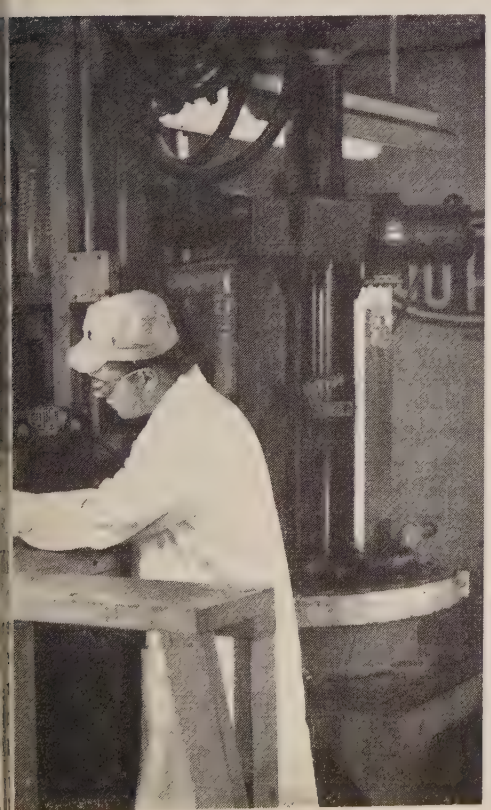
A number of grades of carbides are being success-lly used in the machining of titanium.

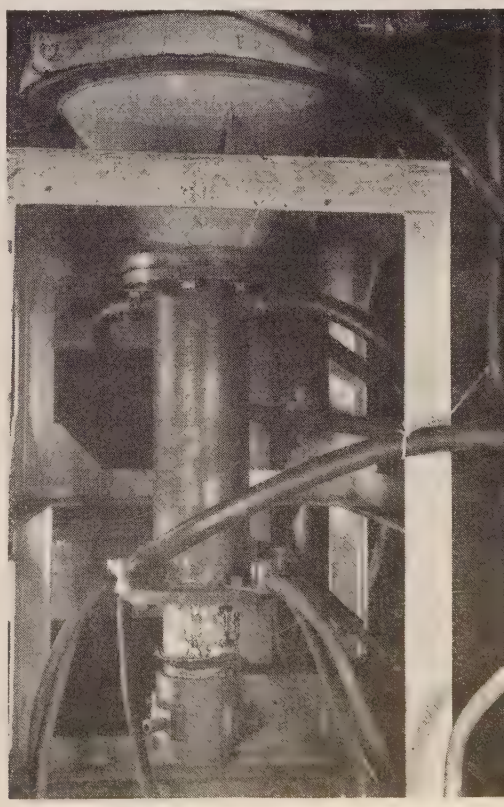
**Tool Shapes Conventional**—In general, tool designs th reference to nose radius, back rake angle, side ke angle, side cutting edge angle, end cutting edge gle, resultant rake angle, inclination side relief and d relief which have been successfully used in the machining of austenitic 18-8 stainless steel are satisfactory in the machining of titanium.

From data accumulated, it is evident that the most satisfactory results in machining have been with slow heavy cuts. For rough cuts, a speed in the range of 30 to 40 surface feet per minute with a minimum feed of 0.030-inch per revolution and a depth of cut about double the feed have been found to be the most generally satisfactory. On finishing cuts, a speed of 50 to 60 surface feet per minute with a minimum feed of 0.015-inch per revolution and a depth of cut about equal to the feed have also been found to be satisfactory.

In machining titanium, the tool should be worked as heavily as possible consistent with the design of the part, the power available in the machine tool and finish required. The tool should never be permitted to ride on the work or at the bottom of a drilled or tapped hole as work hardening or welding will occur.

**Sulphurized Oils Advisable**—One of the most important factors in the machining of titanium is the use of a cutting fluid with the highest possible lubricity and antiwelding characteristics. Combinations of sulphur with fatty and mineral oils have been used with some success. Oils containing sulphur have an increased film strength. Their chief value in machining titanium is due to the properties of sulphur in acting as an antiflux- (*Please turn to Page* 94)





Two views of recently developed arc furnace for continuous casting of titanium ingot melted down from sponge. At left is the upper level of the furnace; at right the lower level. Courtesy Du Pont Magazine, August-September, 1951

# Careful Analysis Can Lower Your CUTOFF COSTS

**This comparison of sawband and abrasive wheel cutting techniques reveals that both have definite advantages and limitations which must be considered when selecting the most economical and practical method for your plant**

CUTTING-OFF operations are as much as part of manufacturing as any other metalworking procedure, with material economy, tool expenditure and actual cutting time remaining inseparable factors. It is true that every type of modern equipment industrially used to cutoff or separate materials is individually efficient; however, while each method has its advantages it also has limitations and for maximum economy in the long run one must therefore take over when another is no longer profitable. This is particularly true with both ferrous and nonferrous materials.

Where production is exceptionally high and quite uninterrupted, it can be rightly assumed that every type of cutoff equipment is an excellent investment; yet, the fact that a machine is temporarily idled and another is overworked does not necessarily indicate inefficiency since operating costs are often thus slashed to a marked degree.

Because sawbands now have exceptionally long life even under most severe cutting conditions, and plus the fact that most modern vertical-type band machines are engineered for hydraulic control of all movements and infinitely variable speeds of from 40 to 10,000 fpm, this combination is deserving of the utmost consideration. Band and abrasive wheel cutoff processes have much in common since they are both continuous whether or not the abrasive cutoff machine is of conventional or oscillating design. With full realization that there is a choice of two distinct bandsaw techniques in favor of vertical type equipment, only by being familiar with both can management apply the proper one at the proper time or else decide against both in favor of the abrasive cutoff method.

**Lighter Metals Cut Faster at High Speeds**—Conventional or low speed sawing is not affected by height of cut or type of material, meaning that all ferrous metals and such nonferrous metals as brass, bronze, copper and zinc come within the machine's full cutting height capacity. Also not limited by material height are the light metals which however cut considerably faster at high speeds of from 2000 to 4000 fpm depending on thickness. On the other hand, friction sawing technique, although limited t ferrous sections not exceeding 1-inch, economicall speaking, most favorably competes with the abrasiv cutoff wheel and this is especially true with steel tub ing having an outside and inside diameter tha results in a thickness within that mentioned abov as the band penetrates the inner wall.

Material waste attributed to difference of ker width, degree of accuracy and finish, comparativ tool and operating costs are all factors effecting th decision as to the most economical cutoff procedur for each case. It can be said that for cutting round square or other irregular ferrous or nonferrous sec tions ranging from 1 to 2 inches that the abrasiv wheel has no lower cost alternative. While the os cillating method shows a marked increase in numbe of cuts per wheel over nonoscillating machines, i also shows a proportionate increase in cutting time A high grade precision sawband under proper contro will stand up efficiently 8 hours on 2-inch molybde num steel and cut 450 square inches; wheel life woul be but 15 minutes by nonoscillating movement. Th same wheel will last 1 hour when cutting a 6-inc diameter bar by the oscillating method but will pro duce only 10 cuts.

**Unnatural Wear Determines Wheel Costs**—Severa factors govern wheel wear; however, what really de termines wheel costs as a whole is unnatural wea and to this must be added wheel breakage, which un fortunately often occurs too early after a new whe has been mounted. Research along lines of abrasiv cutoff practice definitely shows that considerab longer wheel life results when cutting with a coolan as much as conditions will permit. When wet-abr sive cutting, full advantages can be derived fro rubber-bonded wheels properly selected, because th coolant not only maintains the hardness of the wheels, and meanwhile sharp cutting grains, but al reduces amount of change in physical characteristi of the material being cut. With wet abrasive cuto wheel surface speed is considerably less than th required for dry cutting. With the latter tec nique excessive wheel speeds are required to soft material in the kerf, because otherwise the mater

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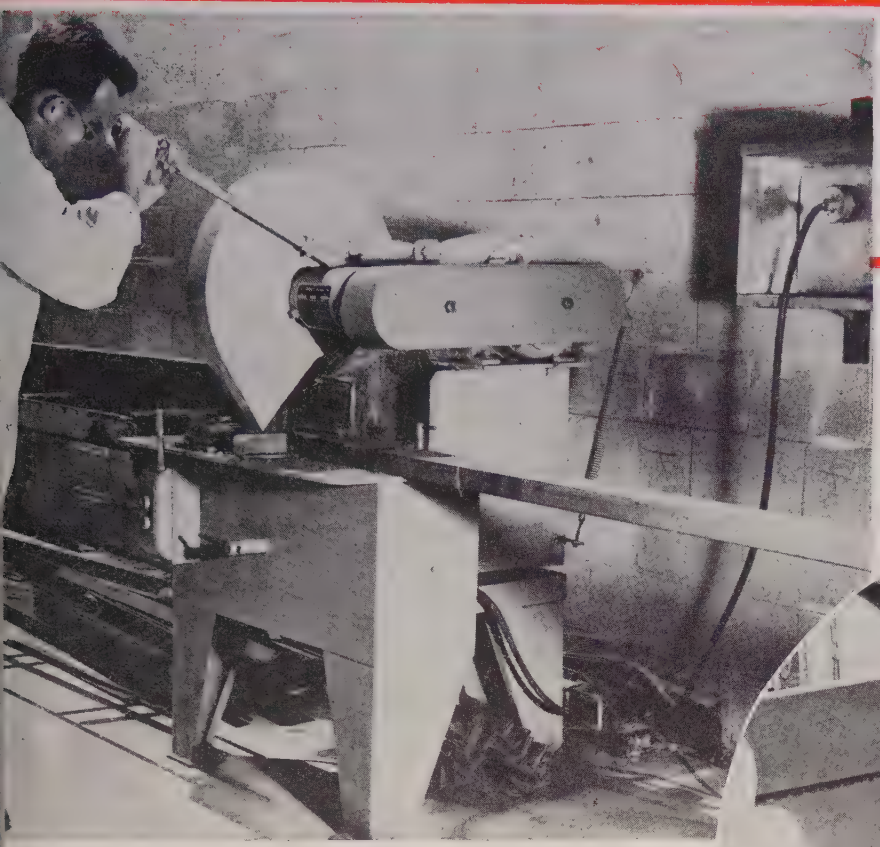
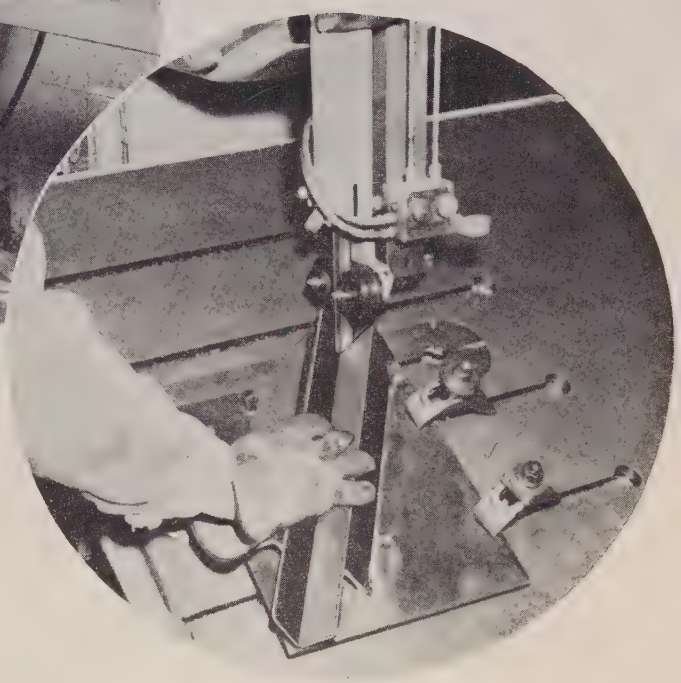




Above—Cutting off a 4-inch steel angle by the abrasive wheel method

Right—Friction sawing an angle of approximately the same cutting area as the one shown in the other photo

uld tear off the wheel grains before they do their rk. There is also the problem of heat which can-t be readily dissipated.

A most frequent setback with dry abrasive cutoff ocedure is the operator's inclination to reduce feed-g pressure through fear of the high wheel-speed, al-ough he is amply protected. Therefore, lack of fficient work pressure causes the wheel to glaze idly, inviting heat and subsequent breakage. On other hand, excessive work pressure is just as l and is also a cause of unnatural wheel wear. In rt, experience proves that dry cutoff operations uld be limited to tool work, short-run production the lighter cuts, preferably under 1½-inch round square. Excessive wheel cost results mostly from cutting thicker sections, and wheel breakage is ewise unreasonably high, especially when cutting rk that cannot be held rigidly by mechanical ans, or must be guided into the wheel manually. is also true that the dry cutoff wheel operating at 000 or 16,000 surface feet per minute, has a greater dency to flex than the wet cutting wheel operat-at 6000 or 7000 surface feet per minute, hence the son why the variation in length of cuts can be held ch closer by wet cutting.

**Abrasive Wheel Gives Better Finish of Cut**—Fric-n and abrasive cutoff costs on solid ferrous sections up to 1-inch are reasonably well balanced, however, the abrasive wheel leaves a better finish of cut. On the other hand, thicker the cut—higher the wheel cost and in some instances the abrasive cutoff machine pays higher dividends when idle. This is indeed true with foundry practice where friction sawing often effects sufficient savings in the removal of gates and risers on thinner cuts to offset the cost of abrasive wheels for thicker sections.

Functions of the friction band and the dry abrasive cutoff wheel are practically the same. Both operate at very high speeds and generate heat to soften the material directly in front of the cutting edges to a plastic state. However, excessive heat from undue pressure is most injurious to the abrasive wheel whereas the friction saw suffers for its material thickness limitations because sufficient heat cannot be generated fast enough. Friction sawing speed range starts at 3000 fpm on thinner sections and gradually increases to a recommended maximum field application speed of 10,000 fpm. The addition of various alloys to the iron changing the softening character-

**COMPARISON OF ABRASIVE CUTTING AND FRICTION SAWING**

Abrasive Cutting (pull-down type machine)

| In Inches Material Diameter (carbon steel) | Time per cut (seconds) | Cuts per 16 x $\frac{3}{32}$-inch Wheel |
|---|---|---|
| ½ | 2 | 1150 |
| ¾ | 3.5 | 500 |
| 1 | 5 | 400 |
| 1¼ | 8 | 200 |
| 1½ | 12 | 100 |
| 2 | 18 | 50 |

Abrasive Cutting (oscillating method)

| (inches) | | | |
|---|---|---|---|
| 1 | 10 | 600 | 18 x $\frac{3}{32}$-inch wheel |
| 1½ | 25 | 300 | |
| 2 | 50 | 160 | |
| 3 | 150 | 50 | |
| 4 | 210 | 35 | 20 x ⅛-inch wheel |
| 6 | 600 | 10 | |

Friction Sawing (stainless steel)

| Material Thickness (inches) | Saw Velocity (fpm) | Lineal Inches Cut per Minute |
|---|---|---|
| ¼ | 6000 | 45 |
| ⅜ | 7000 | 36 |
| ½ | 8000 | 28 |
| ⅝ | 9000 | 18 |
| ¾ | 10,000 | 15 |
| 1 | 12,000 | 4 to 6* |

* Depending on operator dexterity

Friction Sawing (stainless tubing)

| Dimensions (inches) | Saw Velocity (fpm) | Cuts Per Minute |
|---|---|---|
| 1 x ⅞ | 10,000 | 80 |
| 1½ x 1⅛ | 10,000 | 16 |
| 2 x 1$\frac{13}{16}$ | 8000 | 30 |
| 3 x 2¾ | 8500 | 20 |
| 4 x 3¾ | 9000 | 9 |
| 12 x 11$\frac{13}{16}$ | 8000 | 30 |

Other tubing will cut faster, all depending on analysis.

istics of the steel, plus increased material thickness, demand a gradual step-up in blade velocity to generate the additional heat.

**Friction Sawing for Most Steel Tubing**—A very high percentage of steel tubing now industrially used is within the scope of the friction sawing process, with a production increase of as much as 1000 per cent over conventional or low speed sawing. Because when cutting tubing the maximum work thickness is approached only momentarily, friction cutting is limited to a certain wall thickness per given diameter. In other words, 1-inch diameter tubing regardless of the inside diameter is considered a solid round but obviously if its wall thickness is only 1/16-inch the tubing will friction-cut faster than if the inside diameter were ¼-inch. Starting with 1¼-inch OD tubing, the wall thickness decreases as the outside diameter increases in step with the 1-inch maximum friction sawing limitation. The substantially high cutting rates possible, if and when the process is applicable, are worthy of consideration by production keymen when in doubt as to whether the friction band or abrasive wheel is the most economical procedure in the long run.

Cutting of steel tubing having dimensions not within range of the friction process is expedited in low speed machines with fixtures providing multiple cuts. This also applies to bronze tubing which must necessarily be cut at low speeds because of its abrasive characteristics. On the other hand, cutting of brass, copper and aluminum tubing is tremendously expedited by the high speed (not friction) technique due to the fact that velocities can be varied in steps of 500 fpm rather than 50 or 100 fpm as with conventional sawing.

## Big Metal Bite Taken in One Step

Removing more than ¾-pound of metal to produce a rectangular hole is handled in a single setup with a simple fixture at the job broaching plant of Weaver Broaching Co., Detroit, by using three passes. The part having a ⅞-inch diameter reamed hole is positioned between four pins set in a thrust plate. A locating, automatic broach puller and the hole in the part serve to locate the broach.

Tendency to drift is reduced by designing the broaches so they are continuously guided in the part. For instance, in the first and second passes, stock is removed from opposing sides only forming a rectangular slot having a width equal to the original hole diameter. The third pass finishes the length of the slot, guiding in the width, and then the width while guiding between the ends of the slot. Operation is performed on a 10-ton, 60-inch stroke Colonial broaching machine and broaches are supplied by the same company. Despite the heavy cuts taken in the alloy forging, tools have a long life.

## Main Drive Motors Head for Italy

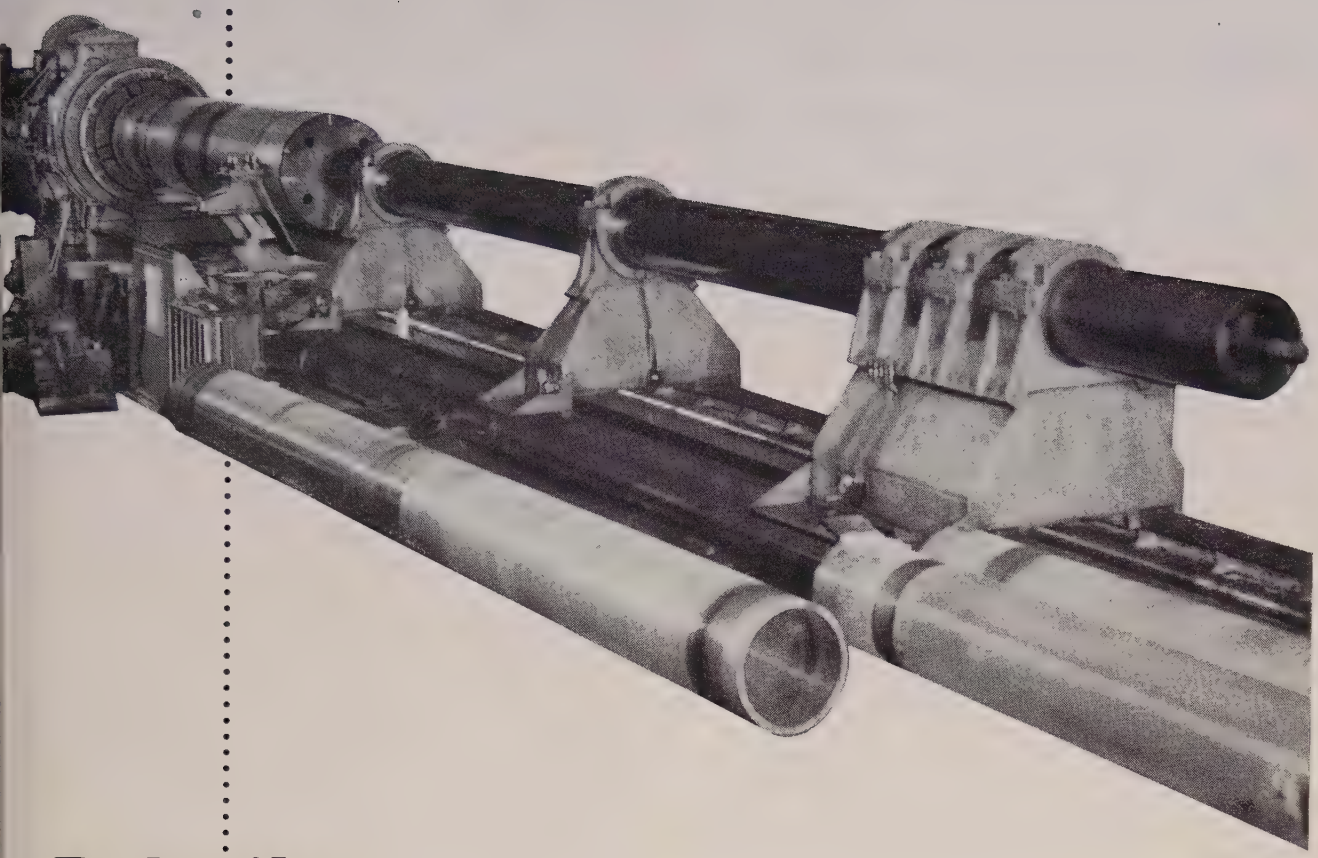
Fiat Co. of Turin, Italy, largest automobile manufacturer in that country, has ordered six main drive motors and complete electronic controls from the Westinghouse Electric International Co., New York for a new 24-stand rod and merchant steel mill. The mill will be used for precision rolling of steel products for automobiles and airplanes. Installation of the new mill represents a final stage in Fiat's steel expansion program for which Westinghouse is supplying large motors, controls and related electrical equipment.

Motor control system will include electronic speed regulators and field boosters to keep variations in motor speed within extremely close limits. Control will be decentralized, with a master control desk and four control sets for the roughing, intermediate and finishing sectors. Besides six main drive motors for the finishing sector being built in the U. S., the Marelli Co. of Milan, Westinghouse Italian licensee, is supplying 12 motors for the intermediate sector, in capacities ranging from 750 to 1000 hp.

## Electronic System Handles Tests

Dynamometer loads are weighed by an electronic system recently adopted at the Woodridge, N. J. plant of Wright Aeronautical Corp. SR-4 load cells supplied by Baldwin-Lima-Hamilton Corp., Philadelphia, are connected under the column linked to the arm of a General Electric cradle type dynamometer of 3000 hp capacity.

The dynamometer is being used for full scale tests of aircraft reciprocating engines. A similar load cell is being used in the same way with an eddy-current brake dynamometer for these tests. These cells have also been adopted at Woodridge for measuring the thrust force of aircraft turbo jet engines. For measuring equipment is a part of an expanding program of production and experimental testing of turbo jet aircraft engines.



# Rebuilt for new-machine accuracy

# Re-engineered for greater capacity

It took some expert machine-tool engineering to convert a 72″ boring lathe into this high-capacity, rapid-production machine. Here's how Simmons *Engineered Rebuilding* went to work for Sandusky Machine & Foundry Company, Sandusky, Ohio:

- **Original 72″ swing increased to 84″ clear over bed.**
- **Capacity increased to take 30″ boring bar.**
- **New carriage has independent motor-operated feed and rapid traverse.**
- **Headstock raised; new castings made for tailstock and bar-rests.**

In addition to adding new capacity, Simmons completely rebuilt the original lathe... dismantled it down to bare castings and thoroughly cleaned it... replaced worn parts... refinished sliding surfaces.

**Have you an unusual rebuilding job?** Simmons' extensive engineering and manufacturing facilities are especially adapted to the rebuilding of every type of machine tool up to the largest sizes.

Give machine-tool rebuilding a priority in your plans for defense and consumer production. You can start by sending us a list of your machines that require rebuilding. We'll promptly quote prices and deliveries and send you case examples of machine tools rebuilt "The Simmons Way."

SIMMONS MACHINE TOOL CORPORATION
1755 North Broadway, Albany 1, N. Y.

**SIMMONS ENGINEERED REBUILDING**
**Gives Machine Tools a New Lease on Life**

# Metal Stitching Speeds Aluminum Door Assembly

METAL stitching has increased production of aluminum door assemblies more than 30 per cent at Tomfohr Overhead Door Co., Portland, Ore. In addition, fastener costs have been lowered approximately 75 per cent and labor charges reduced more than 65 per cent.

Formerly, two men were required. Working together, they assembled one door every 55 minutes, or nine doors per 8-hour shift. With metal stitching, one man is now able to complete a door every 45-minutes, or 12 doors per 8-hour shift.

In this application, stitches having 7/16-inch crowns (internal distance between legs), join the sheet aluminum faces of these doors to aluminum structural supporting members. Stitches are formed from 18-gage stainless steel wire in the following manner: Wire is fed from the 10-pound coil, cut to length, formed into a stitch, driven through the required material thickness, and clinched in 1/5-second. Because stitches are fully supported as they are driven they can penetrate thicknesses three to four times their diameters.

A special setup, consisting of a power-operated table, movable in four directions, and an Acme-Morrison metal stitcher with an extended throat was designed and installed by Tomfohr engineers to adapt the production of this 8 x 8-foot all-aluminum door to metal stitching.

The stitcher was rebuilt by cutting the casting between the stitching head and flywheel and extending the throat to 4 feet so the head would reach the center of the work. Controls at the rear of the revamped machine permit operator to move table and to drive stitches without changing hands.

Operator positions stitching head of extended-throat Acme-Morrison metal stitcher and drives stitches through a 0.40-inch thick aluminum sheet and a 0.72-inch thick structural supporting member without removing hands from the machine. A light-beam stitch positioner and a round-ball marking gage facilitate stitch location

## Many Doweling Problems Solved

Use of the Rollpin—all-purpose pressed fit pin made by the Elastic Stop Nut Corp. of America—to solve doweling problems at low cost in industrial applications have been successfully demonstrated in the reciprocating compressors made by the Trane Co. and in the diesel engine assembly at Cummins Engine Co., Inc. In the manufacture of its reciprocating compressors, Trane is using the Rollpin in four different applications: To simplify cylinder assembly, as a dowel in a thrust bearing, as a bracket to support a strip spring and to lock the oil pump drive key on the oil pump shaft.

Use of the pin in these applications provides these advantages: Low dowel pin cost, no reaming of dowel pin holes required for accurate dimensional control, no special locking of the dowel pin and easy removal and replacement of dowels without damage to pin or hole. In a similar manner, and with much the same results, Cummins is employing the pin as a positioning dowel in the lubrication pump assembly of its H-60 diesel engine.

The device, designed to provide industry with a replacement for the variety of dowel, pivot, tapered and grooved pins most of which require secondary fastening means, gives engineers and designers a high-pressure, shake-proof fastener that eliminates hole-reaming operations. It is rolled into the shape of a cylinder with a gap or slot which paralles the long axis of the hollow cylinder. The pin is oversize in relation to standard drill sizes, and both ends are chamfered, or beveled, so it can be driven into a hole drilled within normal production tolerances. The slot permits compression of the cylinder as the pin is driven in. The resulting tension, caused by the constant pressure exerted against the hole walls, secures it in position against extreme vibration and shock.

## Expansion Joints Widely Used

A catalog containing over 78,000 possible combinations of bellows type expansion joints was recently published by the Solar Aircraft Co., San Diego, Calif. It also contains a complete line of aircraft bellows and assemblies. This 40-page catalog serves as a reference handbook and it illustrates a diversified line of standard and special bellows assemblies used to take up expansion, contraction and offset movements in pipe and conduits.

Several unique designs developed by the company are described in this catalog, as well as many unusual types of bellows applications for the purpose of absorbing motions resulting from pressure or temperature changes in the conducted gases and liquids. These bellows assemblies are manufactured under the trade name of Sola-Flex and range in sizes from ½-inch to 72-inch pipe size covering a complete line of pressures from vacuum to 1000 pounds. Bellows are fabricated from stainless steel and various alloys.

# RETRACTING FACING TOOL
# Eliminates Second Lathe Operation

**Remounting of work and expensive secondary operation are avoided by cam-activated swinging blade which retracts for passage through bored casting**

By F. E. RILEY
*Tool Engineer*
London, England

A SMALL company undertook to machine a large quantity of castings in a turret lathe. A penalty clause was attached to this contract and a low price was quoted on the job. Therefore, it behooved the company to complete the work in shortest possible time, with minimum number of operations.

One of the castings is shown in the drawing mounted in the chuck. With ordinary tools it could be bored and faced at one setting with the important exception of its left hand end. This had to be machined so as to hold overall length within close limits.

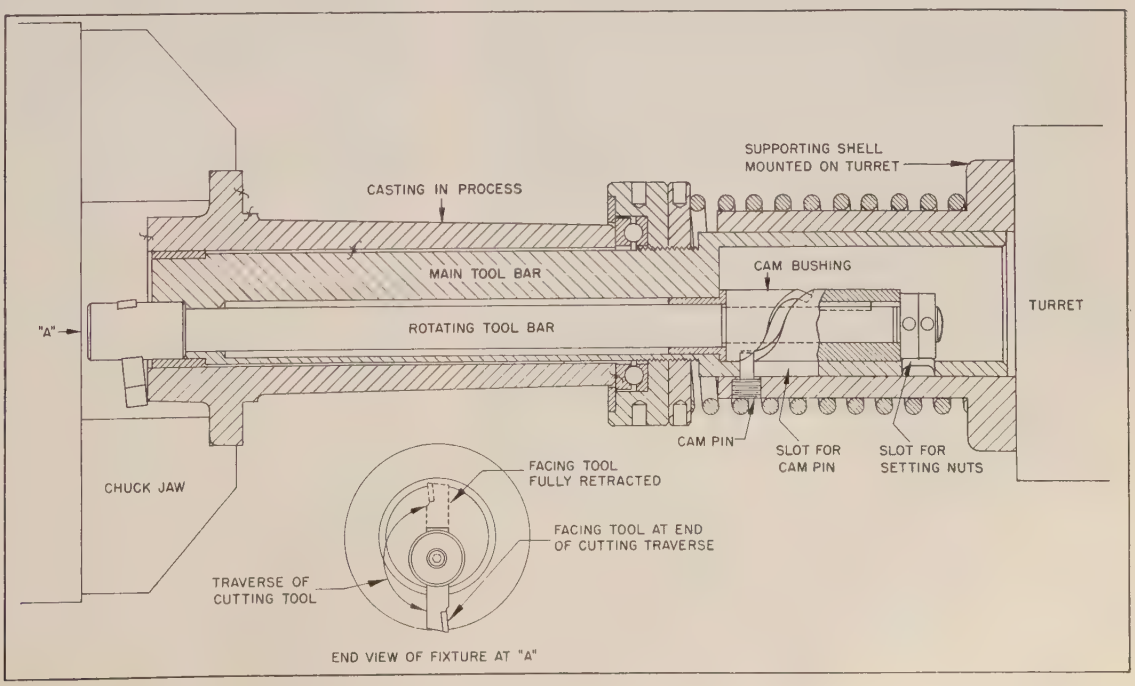
**No Second Operation**—A separate end facing operation, secondary to boring and turning, would have been expensive since the casting would have had to be remounted on an arbor so as to insure that its end face would be square with bore. Arbor mounting of work often takes longer than actual machining operations.

The problem was solved by a special back-facing device designed so the inner end could be machined without removing the work from the chuck—this after boring and turning were completed.

Heart of the back-facing device is a carbide tipped tool mortised into the end of a small diameter bar rotatably mounted off center in a large bar extending from the turret. When this small bar is rotated through a half circle, it swings the cutting tool around until it is completely within the diameter of the bore of the casting. Tool is shown in this retracted position by dotted lines of end view in drawing.

**Takes Facing Cut**—After a casting is loaded into the chuck and machine started, slow revolving of the small bar around its axis causes the tool to take a facing cut across the inner end of the casting. Then when this tool again is retracted, the large bar can be withdrawn through the bored casting by backing off the lathe turret.

Main bar supports the smaller rotating tool bar in bearings in its off-center bore. This main bar has a hollow enlargement at its turret end which houses a helical cam bushing. This bushing is keyed to the end of the small rotating tool bar and held in place by nuts which also serve to adjust end clearance of the rotating bar. Large end of the main bar is slidably supported in a bored socket in a cast member which is bolted to a face of the turret. Rotation between these two members is prevented by a cam pin




End facing device in action on casting in turret lathe. Swinging tool is ready to retract at completion of cutting cycle

screwed into the support casting. This pin passes through an elongated slot in the wall of the large hollow end of the main bar and engages the helical groove in the cam bushing.

Thus, when the main bar slides to and fro in the bore of its supporting casting, rotation of the cam bushing and of the tool bar to which this bushing is attached, results. Length of this sliding movement is restricted to approximately 1-inch by closed ends of cam pin slot in the shell of the main bar.

**Automatic Feed**—Action of other parts of this back-facing device can best be explained by describing how it is used. After boring and turning of a casting have been completed, turret is indexed to bring this back-facing attachment in line with the work. In "free" position, the heavy compression spring surrounding the supporting member on the turret extends itself and the main bar will be pushed as far to the left as is permitted by travel of the cam pin. This pin then is engaging with the right hand end of helix in cam bushing and cutting tool is in "retracted" position. Main bar next is traversed down bore of casting until ball thrust race, mounted in a cup screwed on the main bar, makes light contact with outer face of the casting. Thereupon the automatic feed of turret carriage is engaged.

Turret travel to the left presses the ball thrust race against end of the casting causing main bar to be held stationary. Continued leftwise travel of turret causes supporting member on the turret to slide over the end of stationary main bar. This compresses the coil spring and at the same time causes cam pin to revolve the cam bushing. Facing tool at the outer end of the rotating bar thereupon describes a circular path which traverses its cutting edge over the end of the casting, thus machining off the excess metal.

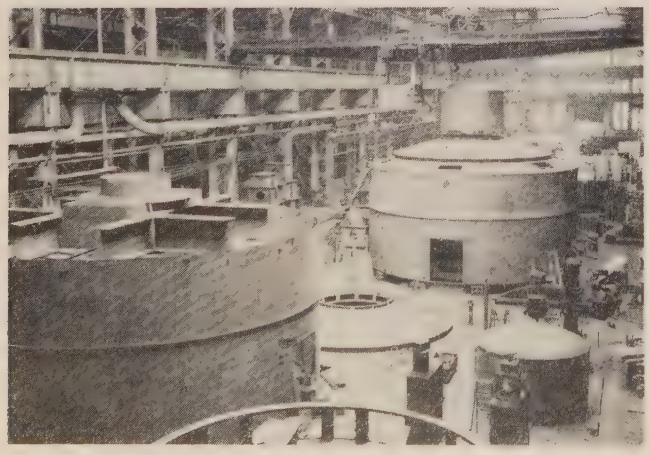
After this facing cut is completed, automatic feed is disengaged and turret is slowly backed off by hand. Pressure on main bar continues to be exerted by compression spring so that it retains its position in bore of casting until cutting tool is retracted completely. Main bar by then has slid as far as possible to the left, within its supporting casting, and the cam pin will be engaging with the right hand end of its slot. Continued backward movement of lathe turret will result in withdrawal of main bar from the bore. Casting now is completely machined.

**Length Predetermined**—Housing of the ball race is backed up with two lock nuts. Adjustment of these members on the main bar will alter the distance between facing tool tip and thrust race, and thereby predetermining length of the machined castings.

Cost of this back-facing device was not as great as the drawing might indicate. No heat treatment was necessary for the main details. They all were constructed of mild steel with exception of supporting casting on the turret and the hardened guide ring pressed on the outer end of main bar. Cam pin of course, was another hardened part.

The long eccentric hole through the main bar did not require especially accurate drilling. Ends of this hole are finish machined in line, the right end carrying a bronze bushing. Wall of large end of main bar end is slotted radially to admit a pin bar for adjusting nuts on end of the small bar.

## Two of Big Three Near Completion



EXCITER housing is being put in place by an overhead crane on one of three 30,000-kva outdoor hydro generators being built by General Electric Co.'s large motor and generator department at Schenectady, N. Y., for Idaho Power Co. Units weigh more than 390 tons apiece, measure 107 feet around the base and stand 28½ feet high. Shipment will be made this fall for installation in the C. J. Strike hydroelectric development located on the Snake river near Boise, Idaho. These big units plus three smaller machines supplied by GE will add 150,000 kva to the western firm's capacity

## Vacuum Impregnation Explained

Vacuum impregnation, which introduces an impregnating agent into a chamber where a high vacuum has been drawn, is a versatile process used in many fields. It permits treatment with impregnants of many materials which would be difficult or impossible to treat satisfactorily under atmospheric pressure.

Not only is the vacuum-impregnated product improved as compared with similar products impregnated by ordinary dipping or soaking, but in many cases the saving in time is very important.

A 32-page brochure on vacuum impregnation is available upon request to F. J. Stokes Machine Co., 5500 Tabor Rd., Philadelphia 20, a leading manufacturer of high-vacuum pumps and vacuum processing equipment.

## Wage-Hour Law Analyzed

A booklet of interest to every employer who does business in interstate commerce is released by the Cincinnati Time Recorder Co., Cincinnati, manufacturer of time recorders, job cost recorders, master program control units and other time control devices. A digest of the federal wage-hour law and recent amendments, the booklet is entitled "In The Dark About The New Wage Hour Law?" According to C. F. Steinmetz, vice president in charge of sales, it reveals the answers to hundreds of questions for which business men should have the answers, to avoid violation of the law.

# Industry's Rust Loss Bill Can Be Reduced

By GEORGE A. DAUBERT
*President, Nox-Rust Chemical Corp.*
Chicago

JST and corrosion account for the needless waste millions of dollars worth of steel and other ferrous ms that are already critically short. "Needless" is e exact word because methods are available to re-ce or virtually eliminate this toll.

Raw materials, fabricated parts and finished prod-ts are all subject to rust and corrosion but research s produced techniques for ample protection. It is fficult to think of any product that does not have rust preventive method specifically designed for its sses.

**Worth Investigating**—Newest and most revolution-y of all the techniques is the wrapping or shroud-g of metal in special paper which has been impreg-ted with a volatile chemical inhibitor. Under humid nditions a rust inhibiting chemical vapor is given by the paper, which permeates the air of the pack-e and prevents the moisture from causing rust. is vapor will travel as far as 12 inches so it is not cessary for the treated paper to be in contact with e metal.

Advantages of this method are that time and man-wer do not have to be used to apply and then re-ve coatings. Shipments which are protected with atile, rust inhibiting paper, such as the Nox-Rust por Wrapper, arrive in factory-fresh condition and ready for use. This is a merchandise advantage pitalized on by manufacturers and shippers who use s technique.

**Blue-Chip Customers** — Volatile, rust-inhibiting pers have proved their value in protecting products h as agricultural implements, gears, bearings, air-ft engine parts, office equipment, and bar stock. is-Chalmers, American Chain & Cable, Caterpillar ctor, General Electric, International Business Ma-nes, International Harvester, and B. H. Aircraft among firms which use the protective covering.

n addition to this method of rust prevention, cial oils and compounds are available for a wide iety of metals, machines, and parts, shipped or red in every conceivable way. Manufacturers of se rust preventives have really gotten down to es, specifying, for example, preventives for indoor rage for six months, outdoor storage up to 12 nths, for storing in an unheated shed, for bin stor-for three to five years, and for many other situa-ns.

Some rust-preventive compounds are designed to move fingerprints from surfaces; others are made light and heavy parts. When a bright appear-e is desired for an article, transparent coatings are d.

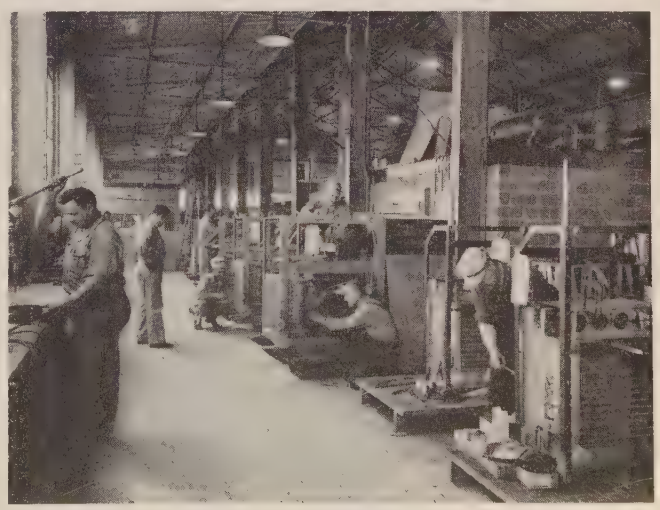
**Guesswork Eliminated**—It wasn't too long ago that t prevention was a haphazard operation. Lard crankcase drainings, or just about any greasy stance was slapped on metal products by guess-work. But by 1940, scientific rust prevention was well established as a specialized field and several firms were turning out preventives for industry. The new rust preventives contained special rust inhibiting additives and were many times more protective than regular lubricating oils or greases.

World War II provided the greatest stimulus ever given to precision methods of rust prevention. Problems of rust and corrosion were more acute than those which had ordinarily confronted industry. Weapons, machines and parts accompanied troops into locations determined by the course of the war, rather than by ideal weather conditions.

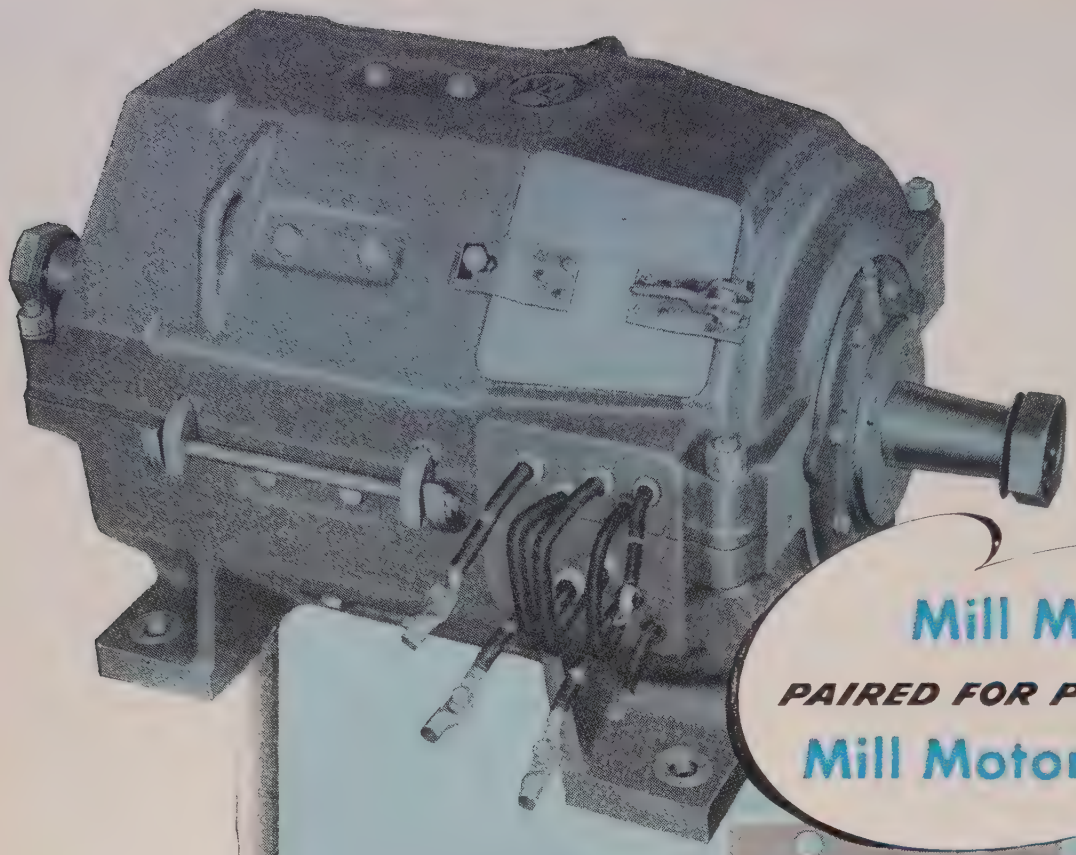
Moist tropic heat, desert sand storms, Arctic blizzards and corrosive ocean salt air threatened the usefulness of metal products. The armed services and producers of rust-preventive products, faced with this threat, got together to map out a program of effective protection of weapons and machinery. A cooperative exchange of technical knowledge, research, and manufacturing skill followed, and exacting standards for preventives were drawn up. The results not only benefited the fighting forces during the war, but the stepped-up development of rust prevention on an organized basis has paid dividends in increased efficiency of protection for industry as a whole ever since.

**Wrong Idea** — In the light of technical advances in this field, it is strange that there are still some firms whose management looks on rust prevention as merely incidental—a sort of gilding-the-lily operation that requires little or no skill or care. Actually, rust prevention must be considered as important as any step in the manufacturing process. Any machine,

## Air Conditioning Facilities Added



CRANE cab coolers are manufactured in facilities added in Pittsburgh by Dravo Corp. and the same shop is also used to service and maintain the growing number of the company's air conditioning units in the busy industrial area. About 50 production and service employees will staff the 19,500 square foot addition

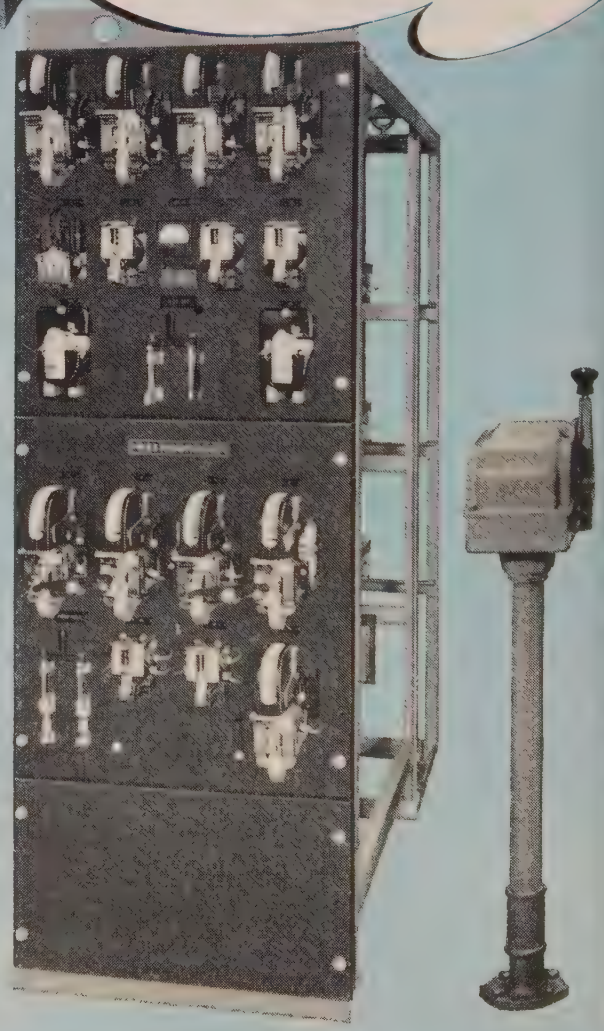


# Mill Motor

## PAIRED FOR PRODUCTION

# Mill Motor Control

600 Series Mill Motor



Typical 9500
Line Controller, Type M
Contactors and Type SM
Master Switch

# Rugged!

# cut mill down time with this team

Certainly in a mill, where down time costs add up fast, the ability of equipment to stand up to rugged continuous duty is of paramount importance. That's why you'll find this combination hard to beat. They are rugged . . . made together to work together. Each incorporates the latest design features to keep production lines rolling.

Take the motor for example. The high starting torque of this new 600 series mill motor is ideal for high inertia loads . . . proved commutation . . . high rated efficiency assures maximum performance under tough service conditions . . . simplified construction makes servicing and maintenance easy. It is a brand-new motor with a new kind of performance built for today's tougher jobs.

Controllers, too, are built to assure new dependability. Main contactors are the new Type M with knife-edge, trouble-free bearings . . . with exclusive Quick-Quench arc boxes which greatly increase contact life. Overload relays are the dual thermal instantaneous type. Accelerating relays are the time-proved inductive time delay Type AZ.

The third part of this control team is the rugged Type SM master switch. Easy to operate, yet with a definite "feel" for each operating point of position, the switches are available with 2 to 6 speed control.

Together, these three offer a new kind of dependability. Get the facts on all three. Ask your nearby Westinghouse representative for a copy of the new booklet B-4730, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-21647

YOU CAN BE SURE.. IF IT'S

Westinghouse

MILL MOTORS AND CONTROLS

## Presses Assemble Munitions

THIS battery of five hydraulic "gas check" presses was recently manufactured by Elmes Engineering Division, American Steel Foundries, Cincinnati, and shipped to a large naval ammunition depot. The C-frame presses, with double-action ram, will be used in ammunition assembly. After the live fuze is inserted in the shell, soft metal sealing plugs are compressed into the shell case under high pressure. This assures that the powder flash will not prematurely explode the projectile. These units have double safety levers, both must be actuated before the press mill closes

tool or part, no matter how well made, becomes a piece of junk if corroded beyond use.

In considering rust preventives, we list four general types: Solvent-dispersal coatings, hot dip compounds, rust-inhibiting oils and the volatile, chemically treated papers. The most generally used rust preventives are of the solvent-dispersal coating type. They contain varying amounts of solvents, depending on the specific use for which they are assigned. These compounds are ordinarily of low viscosity at room temperature, which permits application by dipping, brushing, or spraying.

There is considerable variety within this class, and the coatings formed may be oily, varnish-like, wax-like, or have a combination of these qualities. No controlled heating apparatus is required, and these products will produce a uniform coating on the part regardless of its size. In most cases, a wax-like coating is preferred because it clings tightly to metal and does not tend to drain away during hot weather.

**Variety of Coatings**—These coatings range from a black opaque material which withstands severe weather, to a light type for limited exposure of two to three weeks. Between these extremes are a wide variety of products with varying film thicknesses and many different degrees of protection.

In most uses, grease or petrolatum type rust preventives are applied in a dipping operation at temperatures ranging from 160°F to 200°F. The compounds vary in consistency from that of a firm wax to that of vaseline. Especially useful on bearings, axles, transmissions and other parts are the softer types because they are easily removed.

Melting temperatures should be considered carefully in selecting this kind of preventive, because the a temperature in some areas may be higher durin storage or shipping than the melting point of soft compounds. These materials can also be heated ar brushed on, or sprayed through heated guns. Whe only a small area of a larger machine is to be coate brushing is usually preferred, especially when it is portion of a machine too large for dipping.

When metal is not exposed to the weather and th storage period is relatively short, oil type coatings ar desirable. Sleeves, rods, pistons, sheet steel and wi are examples of products generally protected th way. Coatings applied to sheet steel do not inte fere with processing such as drawing or stamping.

**Safeguarding Engines**—Another popular use for c type coatings is in protecting the interiors of intern combustion engines. A number of these products n only prevent rust but are good lubricants as well, ar serve as break-in oils for auto and airplane engines.

Oil-type coatings blend with other lubricants s there is ordinarily no need for removing them. Thu they are often applied to the interiors of gear hou ings, transmissions, carburetors, and pumps.

Rust preventives have proved their usefulness i war and peace, and the great variety of methods ar applicable for almost any conceivable shipping o storage problem.

## Lightweight Diesels Designed

A report on lightweight, high speed diesels b Cummins Engine Co. Inc., Columbus, Ind., was high lighted in a paper presented by N. M. Reine during the Society of Automotive Engineers summe meeting. Reiners, manager of the Cummins Researc Laboratory, described the experimental six cylinde 401 cu in. engine, which develops 345 hp at 4000 rpm

He emphasized the engine is purely an experiment model and currently is not intended for productio The experiments, he said, had demonstrated that th present highly developed diesel engine is still fa from its ultimate limit.

He also stressed: 1. A truly "high speed" dies with increased flexibility in operation is a future pr bability. 2. The diesel engine's power can be steppe up, both by increasing the speed and increasing th output per cubic inch of displacement. These fa tors also contain the possibility that engine size ar weight can be reduced for given power outputs. Using commercially available fuels, smokeless ar efficient high speed combustion can be secured b projecting the same basic equipment and rules.

4. Aluminum can be assigned a role in the develo ment of lightweight in high specific output and hig rpm diesel engines.

Reiners credited the four-valve cylinder head a major factor in making the 4000 rpm operati possible. He said:

"At one stage in the development, the maximu bhp was developed at 3300 rpm with a two-valve hea Changing to the four-valve head added 40 bhp at t same speed at equal exhaust smoke limits, and push the speed of maximum horsepower output up to a proximately 3700 rpm."

# Gas Velocity Faster in Blast Furnace Stock Columns

By S. P. KINNEY
S. P. Kinney Engineers Inc.
Carnegie, Pa.

E. W. Voice, British Iron & Steel Association, London, has reported in STEEL (September 10, 1951, p. 102) on the use of radioactive tracers and blast furnace research. This is an important piece of research because it deals with the time required for gas to travel from the tuyere level to the stock line and the rate of lining wear.

Rate of travel of the gas from the tuyere level to the stock line is closely associated with the improvement in gas solid contact in the shaft.

Mr. Voice reports 3 to 8 seconds to travel to the top of the stock, equivalent to velocities of 22 and 8 fps, while my measurements here indicated rates of 400 to 450 fps. I believe that the velocity results as reported by Mr. Voice are low, probably because the measurements were made above and not in the stock.

**Free Area**—If we consider the two values for velocity given by Mr. Voice of 22 and 8 fps from the standpoint of the free cross sectional area available for flow on any plane we will come out with some very large values for the free area. Take, for example a furnace blowing 60,000 cfm equivalent to 84,000 cfm of gas at N.T.&P. Velocity of the gas at N.T.&P. above a 17-foot stock line would be 6.2 fpm.

If the velocity were 22 or 8 feet per second (1320 fpm and 480 fpm respectively) and other conditions remain the same then the free area would be:

$$\frac{84000}{X} = 1320$$

$$1320X = 84000$$

$$X = \frac{84000}{1320} = 63 \text{ sq. ft. free area}$$

$$\frac{63 \text{ sq. ft.}}{226} = 28.3\% \text{ cross sectional free area equivalent to 22 ft. per second.}$$

and equivalent to 8 feet per second (480 feet) per minute the free area would be:

$$\frac{84000}{X} = 480$$

$$480X = 84000$$

$$X = 84000 = 175 \text{ sq. ft.}$$

$$\frac{174}{226} = 77\% \text{ free area.}$$

cross sectional free area available for flow.

Free area in the stock column on the given plane would therefore have to be of the order of 28.3 per cent and 77 per cent in order to justify velocities of 22 and 8 fps. These free areas are obviously too high when compared with planes through packed towers. It is pointed out by Mr. Voice that my observations were made in the stock column with a pitot tube. This tube was made of a 2-inch diameter boiler tube, water cooled, equipped with small tubes inside.

**Calibration of Equipment**—A careful check of the pitot tube measurements was made on a large scale laboratory test after the field experiments were completed. In these calibration tests, a large size blower was used to pass air through a column of stock, consisting of ore, coke and stove. These materials were taken from one of the furnaces, under observations. The same pitot tube was employed. Knowing the area of the column, the volume of air blown, the velocity readings were then used to determine the free area of the stock on a given plane. These values were then employed as a check on field records.

From the above, I feel that the velocities as shown in Mr. Voice's results are low because of the location of the point of measurement above the stock. If the tests are made within the column of stock, I believe results will be comparable to observations made here.

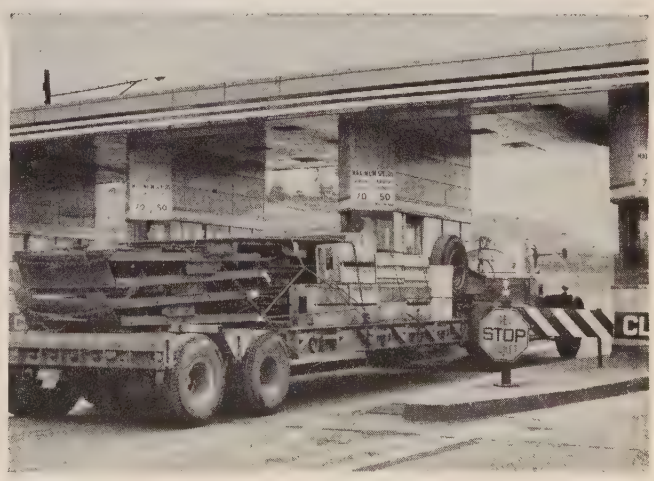
Mr. Voice is to be congratulated on the work he has accomplished in connection with various measurements, having to do with the interior of the blast furnace. I believe this work will lead to better methods of determining what is going on in a blast furnace and is a great help to material industry.

## Iron Hand Uses Gives

Advantages of automatic unloading of power presses with the Sahlin Iron Hand are described in an eight-page catalog just issued. Three sizes to suit large, medium and smaller presses are available. Illustrations show how the device can be adjusted to different widths, heights, jaw travel and distance.

Installation and operation instructions and parts lists are included. Copies may be obtained by writing to Sahlin Engineering Co., 267 Ferndale St., Birmingham, Mich.

## Ramps Head for Fairless Works



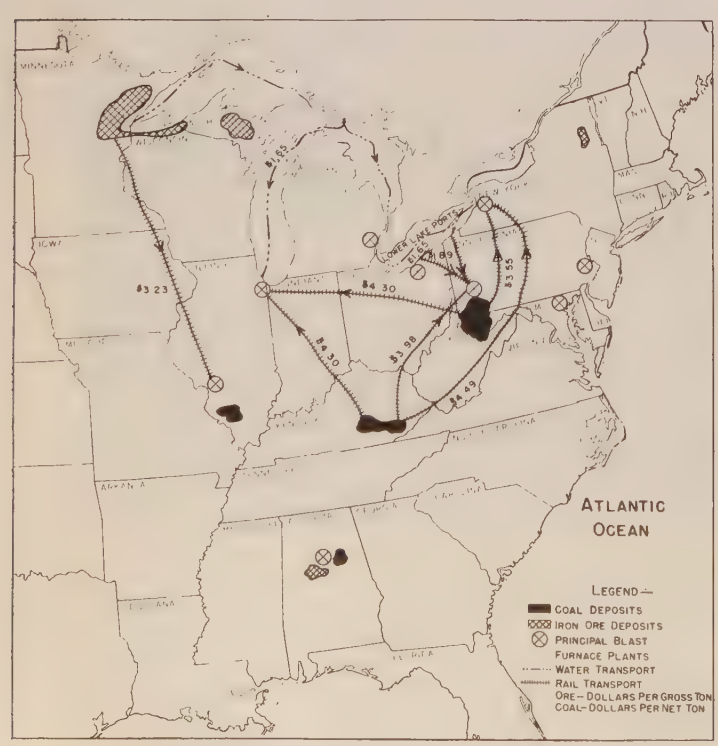

ENTERING the Pennsylvania Turnpike at Irwin are a dozen two-way hydraulic loading ramps made by Superior Railway Products Corp., Pittsburgh, and destined for immediate installation at U. S. Steel Corp.'s Fairless Works. They will be placed in the oil storage building and the large central storeroom building but will be used at first to unload equipment and supplies for the plant's operation. The ramps can be raised as much as 18 inches above the platform or lowered 9 inches below and are locked in place when the proper level is reached

# Potential Sources of Iron Ore Bolster Conservation Program

By OWEN R. RICE
*Metallurgical Engineer*
Freyn Engineering Dept., Koppers Co. Inc.
Chicago

IRON ore requirements in 1950 were filled by the production of approximately 118 million net tons. This rate of demand is likely to continue into the foreseeable future. It may even increase. Seventy-five per cent, or about 89 million net tons, came from the Great Lakes region. About 20 million net tons or 17 per cent were mined in the eastern, southeastern and western parts of the United States. The reserves in these areas are ample to maintain the iron production in the districts they serve for a great many years to come, even allowing for considerable expansion in local iron-producing capacity with consequent increase in ore requirements. However, these ore reserves in the east, south and west of the U. S. are not likely to occupy more than a substantial minority position in the totality of ore requirements of the country. Eight per cent, or about 9 million net tons were imported, principally from Chile, Cuba, Spain, Sweden, Newfoundland, Africa, Mexico, Brazil.

Lake ores contained, on the average, 50 per cent iron (natural), and probably not over over 9 per cent silica, a general grade of analysis which has characterized the lake ores for decades passed. In recent years, as the prime grades of natural ore have become less plentiful, the above standard of analysis has been maintained, in the average of shipments from the lake region, by a substantial component of washed, jigged, and other gravity-concentrated ore—21,600,000 net tons in 1950; almost 25 per cent of the total lake production.




Main coal and ore deposits and major blast furnace districts in eastern half of United States

During the last ten years, many warnings have been sounded that lake ores are nearing exhaustion. The figures published for taxing purposes registering the reserves of high-grade lake ores which can be won by high-speed, low-cost, open-pit mining, show about 600 million tons; for similar high-grade ores but which can be won only by slower, more costly underground mining, another 600 million tons; total, 1200 million tons. For reasons having to do with taxation, both of these figures can be regarded as conservative.

It is true that if we produced all of the 89 million tons annually from the open-pit mines only, the reserves based on the tax figures would be exhausted in six or seven years. Actually, we have been securing over 25 per cent of the production from underground mines, and the efficiency of modern earth-moving equipment is turning underground workings into open pits to a degree unthought of a few years ago. At least there is reason to believe that the high-grade lake ores are good for a span of time in the category of 25 years, if the current rate of demand upon these ores were sustained. This is not very long but it offers time to establish measures to relieve the draft upon, and to extend the life span of these natural high-grade ores of the lake region.

In this same region are large deposits of iron-bearing taconites which contain between 25 and 35 per cent iron. Some veins are magnetic, others are non-magnetic. Commercially feasible means for concentrating the magnetic taconites to a 63 per cent iron product have been established, and large-scale installations are already in project. In 1950, 69,500 net tons of magnetic taconite concentrates were produced in sizable pilot plants. D. B. Gillies, mining consultant, Republic Steel Corp., reports that there are probably 2000 million tons of 63 per cent iron concentrates represented in the quarryable magnetic taconite deposits in one ore range alone. This figure is equivalent to 2500 million tons of the 50 per cent iron lake ores previously discussed, and would potentially extend the life of the lake region to 50 years.

Large reserves of high-grade ores have been proved in Venezuela and in Labrador. Measures are under way to win 10 million tons a year from each of these deposits, with projects for eventually doubling these rates. If 30 million annual tons of eventual imports are applied to reduce the 90 million-ton yearly demand upon the lake ores to 60 million tons, the life of the apparent 5000 million tons equivalent reserve of the latter, in natural ore and taconite concentrates, approaches the century mark.

W. C. Rueckel, vice-president, Koppers Co. Inc., joins with other competent estimators in appraising

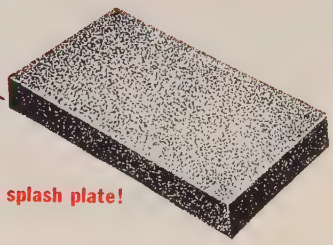
# WHEREVER THE HOT STUFF HITS

# USE NATIONAL CARBON

TRADE-MARK

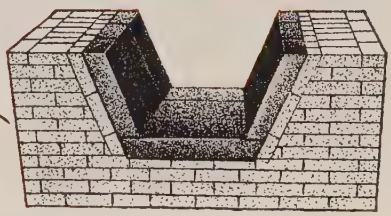
For the cinder notch liner!

For the cinder notch plug!



For the splash plate!

For the runout troughs!



For the skimmer plate!

● "National" carbon is now firmly established for blast furnace linings. It is being used outside the furnace as well—wherever there is contact with molten material—for the splash plate, runout troughs—clear down to the ladle—skimmer plate, cinder notch liner and cinder notch plug.

The reasons?

"National" carbon has no melting point. It is highly resistant to slag attack and thermal shock . . . not wet by molten metal . . . has a low thermal expansion . . . and maintains its mechanical strength at elevated temperatures.

Use "National" carbon inside and outside your blast furnaces and you cut down maintenance, speed up production and save money. For more information, write to National Carbon Company, Dept. S.

*The term "National" is a registered trade-mark of Union Carbide and Carbon Corporation*

**NATIONAL CARBON COMPANY**

**A Division of Union Carbide and Carbon Corporation**

***30 East 42nd Street, New York 17, N. Y.***

*District Sales Offices:* Atlanta, Chicago, Dallas, Kansas City, New York, Pittsburgh, San Francisco

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IF YOU SAY:

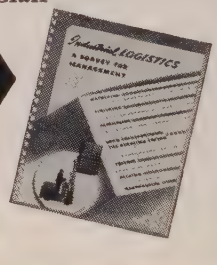
"*But my loads are different*"

then look at these

# ELWELL-PARKER *Specials*

These examples illustrate EP ingenuity in solving unusual handling problems. To meet such needs, Elwell-Parker draws on its 45 years' experience supplying power trucks for over 300 industries. That is why owners of mixed fleets usually turn to Elwell-Parker when they have special requirements . . . From its "pool" of 87 different sizes and types, Elwell-Parker can usually select a truck for the job. If not, ask your EP man about a unit "tailored" precisely to your needs. The Elwell-Parker Electric Company, 4105 St. Clair Avenue, Cleveland 3, Ohio.

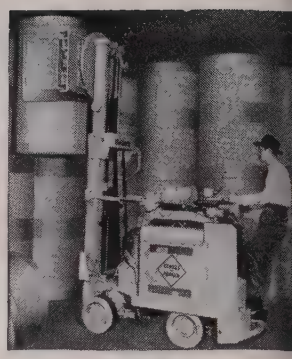
***FREE BULLETIN*** on Scientific Materials Handling. Write for "Industrial Logistics" and name your product.




**ELWELL-PARKER**

**POWER INDUSTRIAL TRUCKS**

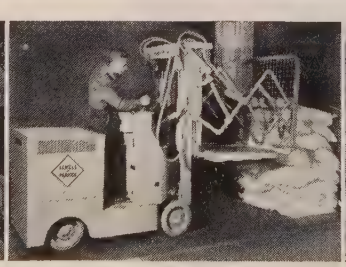
*Established 1893*

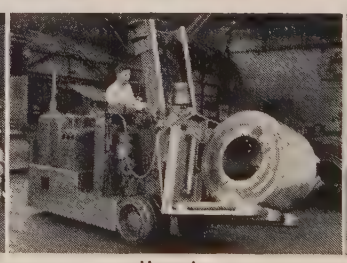

Roll Clamp

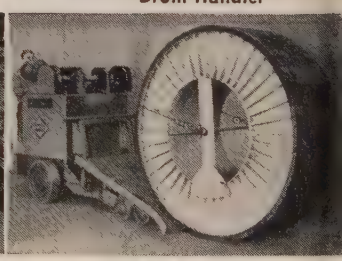
Special Crane

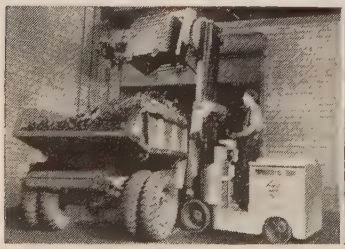
Drum Handler

Die Handler

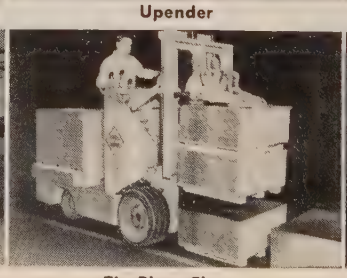

Pallet Retriever


Upender

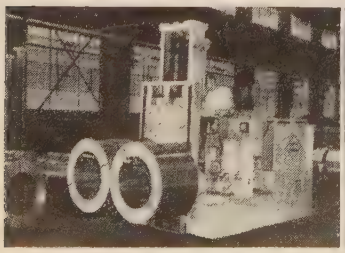

Cable Reel Handler

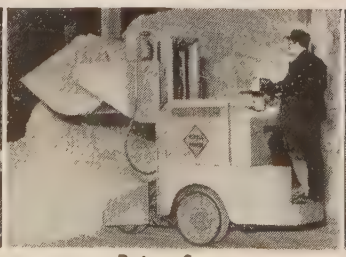

Side Dump Revolving Unit

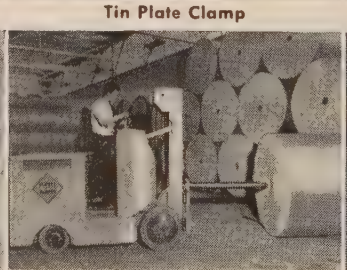
Roll Handler with Apron


Tin Plate Clamp

Bale Clamp


Twin Coil Handler


Rotary Scoop


Roll Piercing Truck

3-Ton Low Lift; 1-Ton Crane

the actual iron ore reserves existing in the world at 35,000 million tons. At the current rate of ore consumption, he finds that world-wide exhaustion might be faced in about a century and a half.

In view of the patently speculative nature of all estimates and prognoses of the sort, and in view of other circumstances, the arithmetical figures that point the possibility of the U. S. running out of iron ore a neat 50 years ahead of the rest of mankind do not come with too severe emotional impact. The iron ore supply situation for the United States calls for energy and enterprise, but it is neither grim nor hopeless.

Operating statistics applying to over 100 blast furnaces in the U. S. show that about 635 pounds of sinter were charged in 1950 per net ton pig. Upon a total production of 66 million tons of pig iron, the total sinter use would appear to be about 21 million net tons.

Sinter-producing capacity as of mid-1950 was about 22 million net tons. The fact that sintering plants of the iron industry were operating at about 95 per cent of capacity, signifies the importance attached to that factor of ferrous materials benefication. There is now a resolute campaign against the charging of fines into the blast furnace. Considerable flue dust is involved in the total sinter production, but the bulk of the sinter mix is fine ore. At one large furnace plant all ores are screened and most of the fines under $\frac{3}{8}$-inch size are sintered.

Conversion costs (cost above materials), including ignition fuel, at several sintering plants amounted to the approximate figures shown in the accompanying table.

Some of the cost differences between plants reside in the contrasting amounts directed to depreciation, as shown in the right-hand column.

Taconite concentrates present a problem in agglomeration. The extreme fineness of the product may not preclude the use of the down-draft sintering process, but it does introduce a rather critical measure of difficulty for that system of agglomeration.

Pelletizing has been under large-scale experimentation for several years. There seems not yet attainable a grade of pellets possessing reliably a degree of physical stability sufficient to sustain them through the rigors of handling in shipment from plant, to vessel, to rail, to bunkers, to furnace.

Other schemes are under consideration for bringing to heel these elusive concentrated taconite powders, such as briquetting with portland cement or other binder, mixing with coal or other carbonaceous caking material to form an iron-bearing coke, and nodulizing process using a rotary kiln. This latter system, on a large pilot basis, will presently be in run, not perhaps, on taconite concentrates, but more likely on the ultra-fine component of marginal lake ores. The rotary kiln has been in and out of the iron-ore agglomerating picture for many years.

Blending of ore stocks has been found useful in regions where winter freezing conditions are not so severe as to interfere with the functioning of the reclaiming equipment. Such a mechanical system of blending, however, has not been found necessary at all in the case of lake ores shipped by vessel. The routine of railroad-car sampling between mines and loading docks, and the orderly spouting out of the dock bunkers into the hold of the ore vessel, has, for a great many years, effected a degree of blending that permits the delivery of cargo lots of ore on a guaranteed analysis basis.

**CONVERSION COST OF PRODUCING BLAST FURNACE SINTER —YEAR 1950**

| Plant | Sinter Produced, N.T. | Type | Total Conversion Cost/N.T. Sinter | Provision for Depreciation |
|---|---|---|---|---|
| A | 1,760,000 | Pallet | $0.95 | $0.07 |
| B | 710,000 | Pan | 1.45 | 0.17 |
| C | 50,000 | Pallet | 1.65 | 0.30 |
| D | 800,000 | Pallet | 1.95 | 0.50 |

From a paper presented at the 1951 general meeting of the Iron and Steel Institute, London.

## Planned Care Stretches Belt Life

Theme of a conveyor belt maintenance program being conducted by Cambridge Wire Cloth Co., Cambridge, Md., is "Planned Care Means Longer Belt Wear." It is aimed at better maintenance of woven wire conveyor belts in high temperature installations to stretch belt life during the current period of metal shortages. These shortages, of course affect the delivery of replacement belts when original equipment wears out.

Program combines intensive field work by the Cambridge staff of sales engineers with a series of mailings to users of woven wire conveyor belt for such installations as heat treating, annealing, sintering, etc. Each mailing contains general data on woven wire conveyor belts plus a specially prepared belt hint on one or another phase of belt maintenance. Hints so far have dealt with proper methods in installing a belt, standardization of belt specifications and special service facilities. Later mailings will feature stress relief of new belts, the value of protective oxidizing treatments and others.

## Flood Damage Repaired Quickly

Electric heaters proved they could take care of themselves and help get a waterlogged plant going again in a hurry following the summer floods in the Midwest. Here's how the job was done when waters receded at Sealright Co. Inc., Kansas City, Kans., container manufacturers.

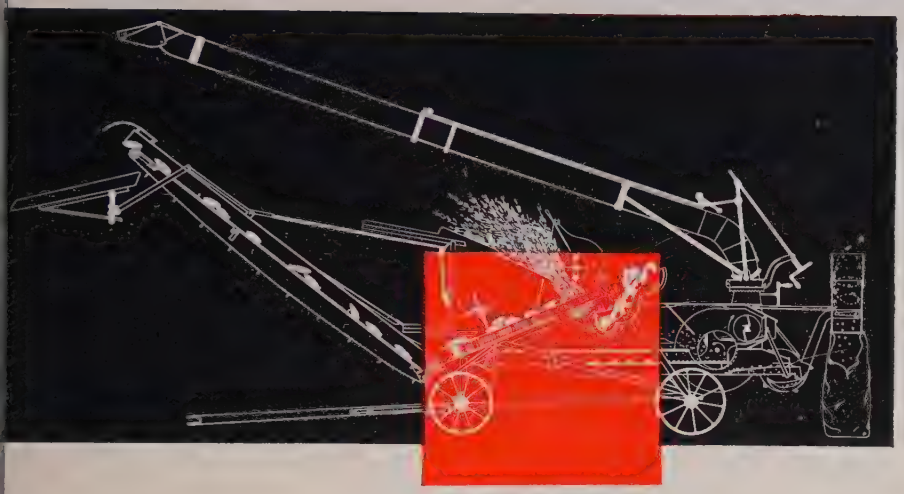
Four Cromalox radiant heaters made by Edwin L. Weigand Co., Pittsburgh, and normally used to dry ink on cardboard were rewired in series and allowed to dry themselves at a low heat. They were then installed in a temporary insulated plywood oven. An electric fan was used to circulate air in the oven, making it possible to hold the temperature constant at 200° F.

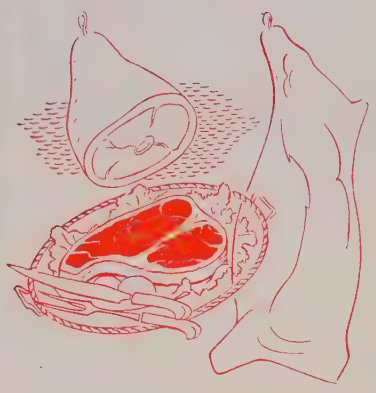
Operating continuously 24 hours a day, the oven dried 300 motors (75 per cent of the plant's total) and various other equipment in little more than two weeks. After that, the adaptable radiant heaters were easily and quickly returned to their former occupation.

# how rolls of ir

A prominent Corn Husker Bui
in Milwaukee chose this LeBl
20" Rapid Production Lathe to t
these tough cast iron rolls. De
of cut, 5/16" (intermittent); fe
.050 ipr; surface speed, 90 f
tool, 30° negative-rake carbi
tool life, 200 pieces.

# help put meat on your table





At the heart of machines that husk corn and shred the stalks into fodder are iron rolls like these! They help the farmer convert his crop to feed for livestock—the steers and hogs that become tender steaks and juicy hams for your table.

A prominent Milwaukee builder of husker-shredder machines for more than sixty years, needed a production lathe to turn these rolls . . . a lathe rugged enough to take the beating of a 5/16″ intermittent cut at .050″ feed and 90 surface feet per minute, and to withstand the forces of a 30° negative-rake carbide tool, cutting iron hardened by casting around a steel shaft!

On the recommendation of LeBlond's Chicago Office, they put a LeBlond 20″ Rapid Production Lathe on the job. Result? *Three and a half years of rough yet trouble-free production . . . and many more to go!*

A LeBlond 20″ Rapid Production will give you high production turning of a *variety* of work within the range you choose. It offers two speed ranges, 45 to 300 rpm or 67 to 450 rpm, and 18 feeds from .005″ to .150″.

*Not* a converted engine lathe, it has no quick-change box or leadscrew, expensive features unnecessary for production work.

Whether you're turning rugged rolls or precision shafts, there's a LeBlond Lathe to turn them faster, better. Your LeBlond Distributor will tell you about the 20″ Rapid Production and other late models. Call him or write—

**THE R. K. LEBLOND MACHINE TOOL COMPANY, CINCINNATI 8, OHIO**

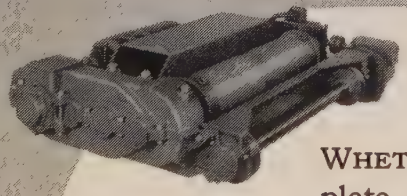
*Ask for Bulletin RP-220 G for more information on the 20″ Rapid Production Lathe.*

**turned faster by**

**LeBLOND of Cincinnati**

WORLD'S LARGEST BUILDER OF A COMPLETE LINE OF LATHES • FOR MORE THAN 63 YEARS

NORTHERN
HI-LIFT CRANES
keep them rolling!



WHETHER handling strip, sheet, plate, structural steel or finished parts, a Northern Hi-Lift Crane helps keep your trucks and trailers rolling to make scheduled deliveries; handles big, heavy loads for fast loading; saves time, cost, and ruffled tempers.

For over fifty years Northern Cranes have consistently stressed three essential elements —safety, durability, dependable operation— with ample provision for meeting emergency demands under peak material handling conditions. They keep your production moving and your shipments rolling!

*Write for our new Bulletin HL-115*

NORTHERN ENGINEERING WORKS
2615 E. Atwater St., Detroit 7, Michigan

## Titanium Alloys

(*Concluded from Page 69*)

ing agent where there is a tendency for the chip to be welded onto the cutting tool.

In addition to the sulphur additives, some degree of success has been obtained by the use of chlorine additives in mineral oil and fatty oil combinations. Chlorine may be added to cutting oils in the form of chlorinated solvents, such as carbon tetrachloride or trichlorethylene. These materials, however, evaporate rapidly and have dangerous toxic properties.

The sulphur additive cutting oils are effective in preventing welding under severe cutting conditions and at the higher cutting speeds. The chlorine additives are more effective at lower speeds and lighter cuts and also reduce friction. The most satisfactory cutting fluid consists of the proper balance between active sulphur, active chlorine in a nontoxic form and polar-type fat additions for lubricity, combined with a mineral oil of the correct viscosity.

Recommended properties of cutting oils to be used are as follows:

| Viscosity | Fat | Active Sulphur per cent | Active Chlorine per cent |
|---|---|---|---|
| 150/100°F. | 10% | 2 | 3 |
| 225/100°F. | 10% | 2 | 3 |
| 500/100°F. | 10% | 2 | 3 |

**Grinding Wheel Wear Rapid**—Titanium dust is highly explosive; therefore, wet grinding is recommended wherever possible. Grinding presents the greatest difficulty in the working of this metal. Aluminum oxide wheels have been the most satisfactory, although silicon carbide wheels with a soft bond have been used with some success. In both cases, the wheel wear is rapid, averaging five to ten times the amount experienced when grinding steel with the same rate of cut. In most titanium grinding operations, the rate of wheel wear is about 2 cubic inches for each cubic inch of metal removed.

The chief difficulty in grinding titanium is that the metal tends to smear off and load the abrasive grains of the wheel. To resist this, a water-soluble oil containing antiwelding additive and saponifiable, is preferred.

## Offers Fabricating Facilities

"Facilities Available for Military Production" is the title of a new 12-page brochure issued by the Defense Division of Geuder, Paeschke & Frey Co., Milwaukee. The booklet describes in detail G. P. & F.'s complete metal fabricating, finishing and assembling facilities.

# New accomplishments with Johnson's wax drawing compounds!

**Aircraft Plants**—Johnson's #150 Wax Lubricant successfully used in first stretch forming operation ever tried on Titanium sheet.

50% production time cut claimed on wire brush polishing of stainless steel metallic arc welds with Johnson's #111 Wax Lubricant.

Aircraft engine manufacturer reports outstanding success using Johnson's #150 Wax Lubricant forming Nimonic #75 sheet on Cincinnati Hydroform press.

**Automotive Plants**—Chicago firm advises drawing former troublesome annealed sheet without annealing through use of Johnson's #150 Wax Lubricant.

Michigan plant of large automotive parts supplier applying Johnson's #150 Wax Lubricant to more and more press operations due to successful experience on tough draws.

**General Industry**—Outstanding success reported by New Hampshire firm using Johnson's #111 Wax Lubricant for impact extrusion.

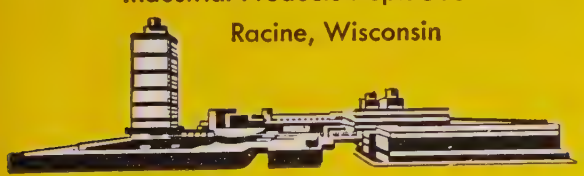
"Better finish on drawn parts . . . never seen anything that works as well tapping die castings as your wax lubricants," says Pennsylvania machine shop foreman.

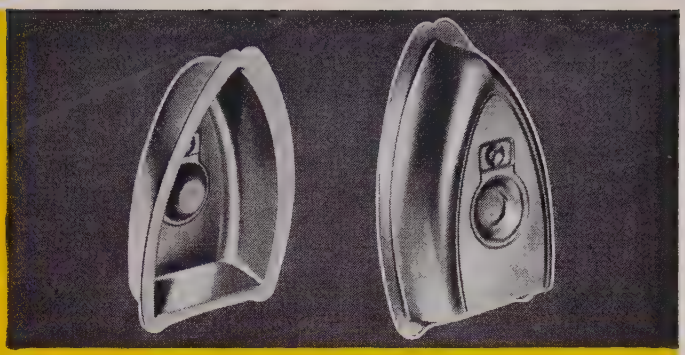
For complete information on the use of Johnson's Wax Lubricants for deep drawing, tube drawing, cold heading, tapping, drilling, routing, sawing, piercing and blanking, bending, stretch forming, etc., *write*—

**S. C. JOHNSON & SON, INC.**

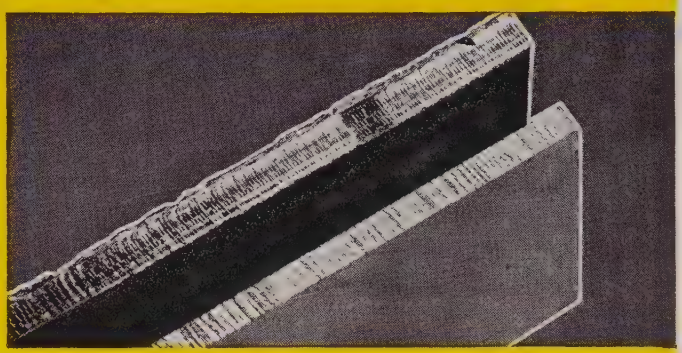
Industrial Products Dept. S10

Racine, Wisconsin

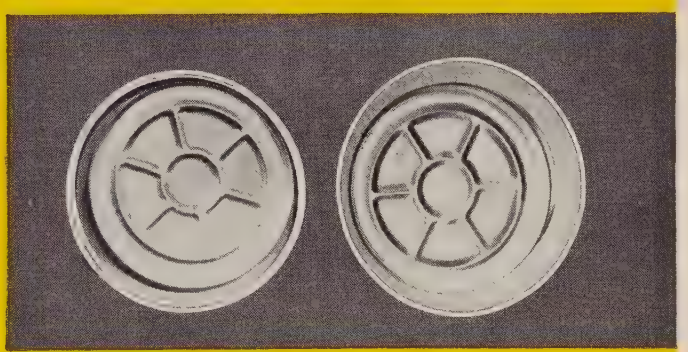




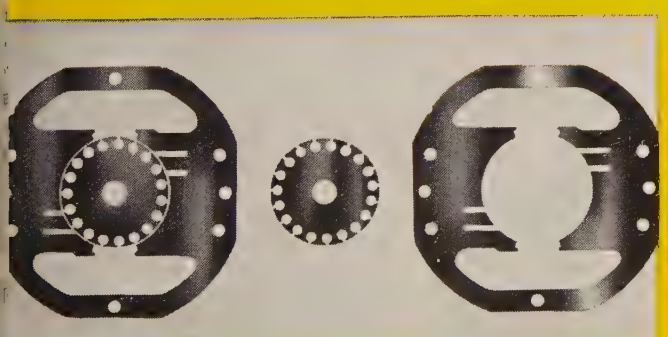
Part for steam iron drawn from #430 stainless steel with 300 ton hydraulic press. Use of Johnson's #150 Wax Lubricant eliminated shutdowns and permitted redesign of die to make draw in one operation instead of three steps formerly required.



75 ST aluminum pieces cut with Onsrud high speed radial arm router. Conventional lubricant gave 3 cuts per tool—left heavy burr (top view). Johnson's #170 Wax Coolant gave 11 cuts per tool—left no burr—required 50% less pulling effort (bottom view).



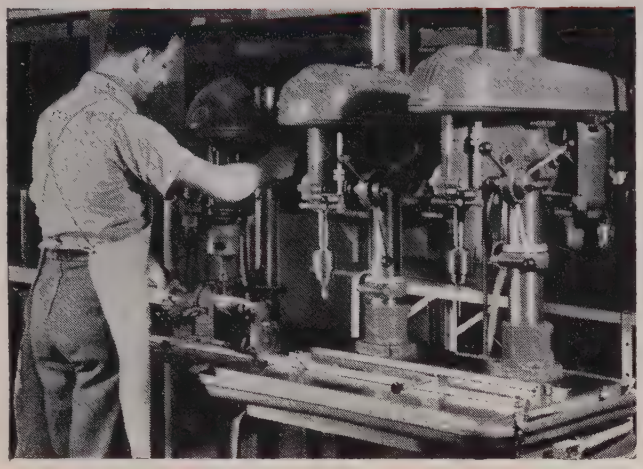
Ammunition Powder tank part of .081 gage—3 S O Aluminum drawn and swaged on automatic swaging die. Johnson's #150 Wax Lubricant applied prior to initial draw provides sufficient lubrication for swaging operation.



Motor lamination set stamped from electrical sheet. Normal run per die grind—45,000 sets maximum using conventional lubricant. Increased run per die grind to 65,000 sets using Johnson's Wax Lubricant.

Well jettison fuel tank part of .125 gage—61 S O Aluminum formed on hammer die with Johnson's #150 Wax Lubricant providing lubrication. Aircraft firm unable to produce this part satisfactorily prior to use of Johnson's #150 Wax Lubricant.

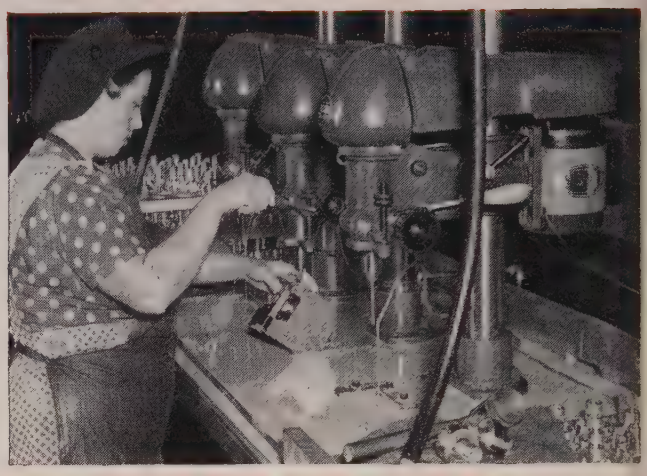
# HOW Delta Tools Solved Four Unusual Production Problems



## TIME SAVING 50%—PRODUCTION INCREASE 100%

*ALBERT SPECIALTY CO., CHICAGO, ILLINOIS*

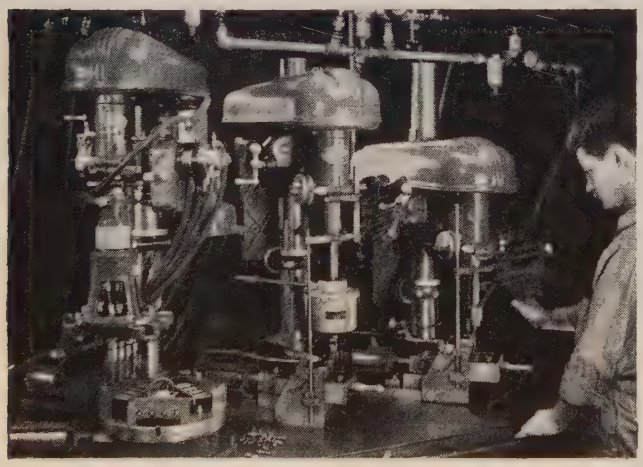
When lack of a 3-spindle drilling machine jeopardized vital sub-contracts on aircraft and signal corps equipment, this company combined a Delta 2-spindle unit and a Delta 1-spindle unit for drilling, countersinking and tapping six holes in each end of a tube used in a signal corps tripod. A special fixture made it possible to drill the phenolic tubing and brass casting simultaneously with different position limits to make tripods interchangeable. Result—a 50 per cent time saving and production increased 100 per cent over the old method.



## ACCURATE HIGH SPEED DRILLING—NO SCRAP

*OHIO BRASS CO., MANSFIELD, OHIO*

To achieve precision accuracy at a cutting speed of 12000 rpm. in drilling and reaming forged aluminum blanks for fuse components, three Delta super high-speed drill presses were installed in sequence. Blanks are passed from one station to the next, and stops on the table make for quick accurate positioning. Scrap has been eliminated.



## DRILL AND TAP 160 PIECES PER HOUR

*EDWARD VALVES, INC., EAST CHICAGO, INDIANA*

To increase production speed and reduce labor costs on valve stop collars, Edward Valves, Inc., installed three specially tooled Delta drill presses. Piece is put in machine at right and drilled, manually positioned but automatically clamped by air on drill downstroke. Center machine does tapping operation. Production rate—160 pieces per hour on both operations. Left machine drills valve lubricant screws with 5/32 drill, 500 pieces per hour, with 95% of operation actual machining time, only 5% for loading.

## DRILL PHENOLIC PARTS WITH PRECISION ACCURACY

*ACRO MANUFACTURING CO., COLUMBUS, OHIO*

Delta Super-Hi speed drill presses solved three serious problems of drilling phenolic switch parts: (**1**) formerly drilled four switches to one bit—now drill 150; (**2**) enlarging holes close to edges of phenolic parts always resulted in 60% scrap because of breakage—with Delta scrap is only 10%; (**3**) drilling a .004 hole to tolerances of plus or minus .0005 formerly required two operations, drilling from either side. Now with Delta it is done from only one side.

*There's a Delta Power Tool for Your Job*— WOOD OR METAL WORKING

**53 MACHINES—246 MODELS—MORE THAN 1300 ACCESSORIES**

*Your Delta dealer is listed in your Classified Phone Directory under "Tools"*

DELTA MILWAUKEE ROCKWELL

**DELTA POWER TOOL DIVISION**

**Rockwell MANUFACTURING COMPANY**

629L E. VIENNA AVENUE • MILWAUKEE 1, WISCONSIN

## oreign Engineers Get Training

American know-how is finding its ay into the power plants and engi-eering firms of India, South America, gypt, Sweden and nearly a score f other foreign countries through a raining program carried on in Pitts-urgh by Westinghouse Electric Corp. nd Westinghouse Electric Interna-ional Corp.

In a program which has been eveloped over the years, young en-ineers from many nations have been iven the opportunity to learn first and how giant power generators, witchgear apparatus, transformers nd motors are built and operate. urrently, some 20 foreign students re studying side-by-side with recent raduates of American engineering chools who are employed by the com-any.

"Our graduate student training ourse with its comprehensive view f virtually all company operations ideal for foreign students seeking merican know-how," says M. J. Varneke manager of graduate stud-nt training. "While the new em-loyee on the graduate course is dis-overing which phase of the com-any's varied activities interests him ost, the foreign student is learning e American way of doing things, hich will stand him in good stead hen he assumes a responsible en-neering job in his native land."

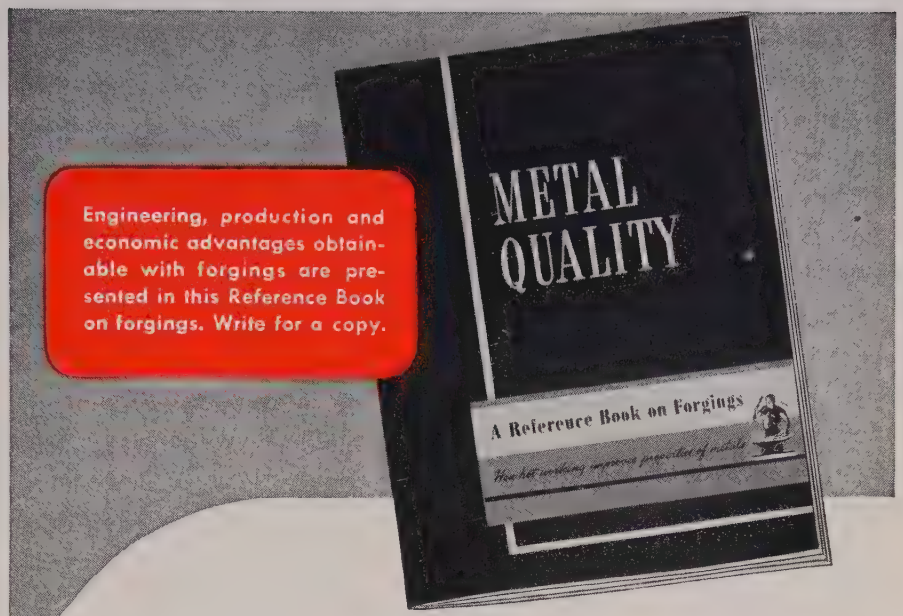
While the program is commercially ttractive to the company—trainees turn to their native countries with thorough knowledge of Westing-ouse products—only a few of the any applicants who desire training n be accomodated.

## niversal Arch Nosing

Arch nosings, in any furnace take licking. They are always out in ont whenever direction of gas flow ust be changed, and are always in e corner behind every conceivable struction when it comes to cooling eir supporting steel girders and stings. According to the George Reintjes Co., Kansas City, Mo., e old type angular arch nos-g was a source of much grief and nstant maintenance cost. It is vious that the larger the nosing dius, the smoother the gas flow d naturally, less mechanical spal-g and less refractory maintenance sts.

The radial type of arch nosing was iginally developed by engineers at e of Western Electric Co.'s boiler oms. This arch was an innovation which all the suspended arch man-facturers soon subscribed.

Company's original contribution to


Engineering, production and economic advantages obtainable with forgings are presented in this Reference Book on forgings. Write for a copy.

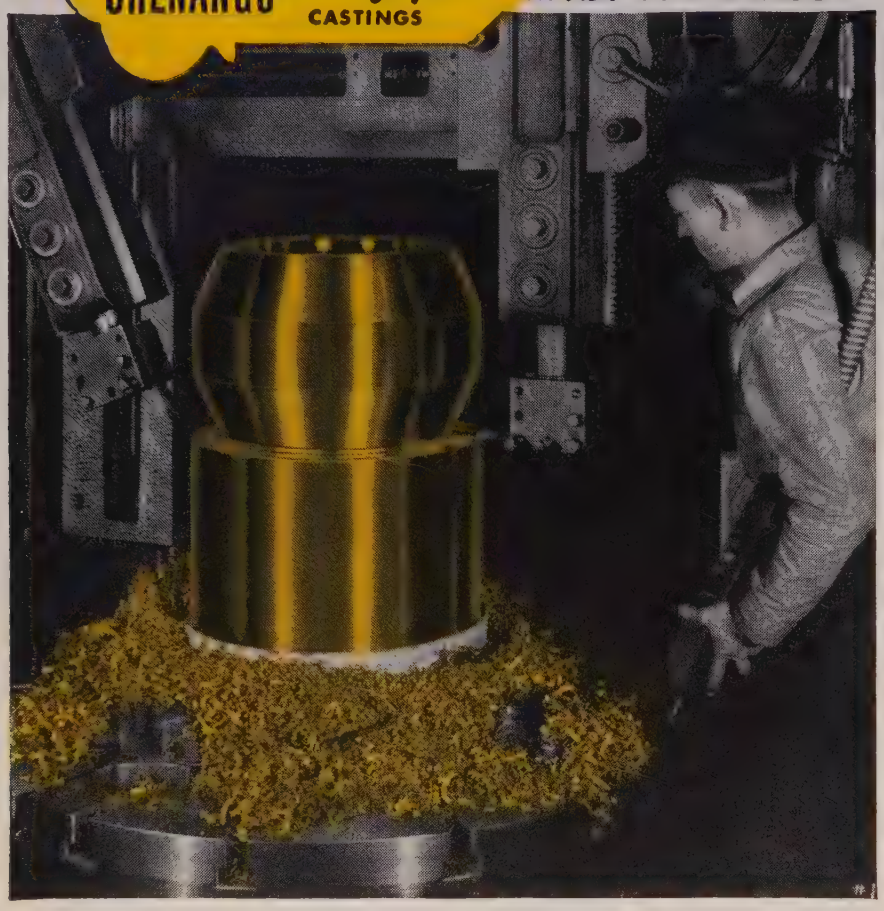
**• Attempts to gain the unusual mechanical and economic advantages of closed die forgings without using forgings seldom meet with success. There is no substitute for the combination of strength and toughness inherent in the compact fiber-like flow line structure of forgings. Consult a Forging Engineer about how you can obtain a correct combination of mechanical qualities in forgings for your particular type of equipment.**

DROP FORGING ASSOCIATION
605 HANNA BLDG. • CLEVELAND 15, OHIO

Please send 60-page booklet entitled "Metal Quality — How Hot Working Improves Properties of Metal", 1949 Edition.

Name .....
Position .....
Company .....
Address .....

SHENANGO *Centrifugal* CASTINGS ... KEY TO SAVINGS



# How to save time and money on symmetrical parts!

YOU are in line for a double advantage when you turn to Shenango for symmetrical, tubular or annular parts, large or small.

First, such parts are produced by Shenango's advanced centrifugal casting process. This means *tougher* parts because of finer, pressure-dense grain, greater strength, better elongation and freedom from sand inclusions, blow holes and other often hidden defects. It also means less waste, less machining.

Second, Shenango has the modern machining facilities and skilled workmanship to give you semi-machined or finished parts... precisely as specified... at minimum cost! The heavy trunnion bearing shown above is one of the many types of parts, large and small, ferrous and non-ferrous, regularly produced at Shenango.

**FREE BULLETINS**

Find out if Shenango can help you save time, money and material. Bulletin No. 150 covers non-ferrous centrifugally cast parts; Bulletin No. 151 for parts of Meehanite Metal and Ni-Resist. Either or both are yours for the asking.

**SHENANGO-PENN MOLD COMPANY**
**Dover, Ohio**
*Executive Offices: Pittsburgh, Pa.*

SHENANGO

ALL RED BRONZES • MANGANESE BRONZES • ALUMINUM BRONZES
MONEL METAL • NI-RESIST • MEEHANITE® METAL

the art of building radial furnace arches was the hinged nosing support. They knew that the horizontal portion of any arch expands; the pressure is exerted against the nosing. Their hinged nosing moves and eliminates the pressure.

Next step was to build the flat portion of the arch at any slope desired, hinging the arch's nosing so as to be tangential thereto and without a special shape of refractory and/or casting. Changing arch contour is no longer a special engineering problem but a simple field operation that can be easily handled by the plant mason.

Reintjes hinged arch nosing originally designed as a boiler arch is applicable to steel mill heating furnaces. Open-hearth furnaces fantail nosings are particularly vulnerable due to the fact that in many cases the fantail-nose supporting girder also supports the heated uptake wall. This girder is at right angles and in close proximity to the chill wall. In some cases, the girder supports thrust from the chill wall. Heat of this chill wall is readily transferred to the girder.

Engineers know that heat is transferred through the refractory arch supporting castings as much as 45 times faster than through alumina refractories. This simply means that the more and the larger the cross-sectional area of the castings that attach the arch refractories directly to the supporting steel girders, the greater will be the tendency of the arch supporting girder to overheat and warp. At best, it is a difficult problem to properly circulate cooling air through this "forest" of supporting castings.

In open hearth or other melting furnaces, entirely new and more difficult problems are encountered. For instance, in one furnace, the operator may desire to use high alumina refractories. In the next furnace, the use of basic refractories may be specified.

Reintjes arch nosing design permits use of any type refractories whether of high alumina, silica or basic. As the standard shapes of arch nosed tiles are built up in multiples of 15 degrees, a 180-degree or semicircle arch can be formed. Through this design, alumina refractories can be replaced at any time with basic refractories, either plain or metal-clad without the change or relocation of a single casting or girder. The same design of nosing can be used as a fantail nosing, a curved portion of the chill wall of an open hearth, or wherever nosings are required in any heating furnace, roof, and similar locations.

# is light weight important to your product?

Torrington Needle Bearings contribute to weight-and-space-saving design in many products.

For any given load, Needle Bearings weigh less and require less radial space than any other type of anti-friction unit.

Needle Bearings also permit weight savings in related components. Only a bore machined to proper dimensions is required for the housing and no spacers or retainers are needed.

So, if your product can benefit from light weight, let our engineers help you utilize the weight- and space-saving advantages of Torrington Needle Bearings.

**THE TORRINGTON COMPANY**

Torrington, Conn. • South Bend 21, Ind.

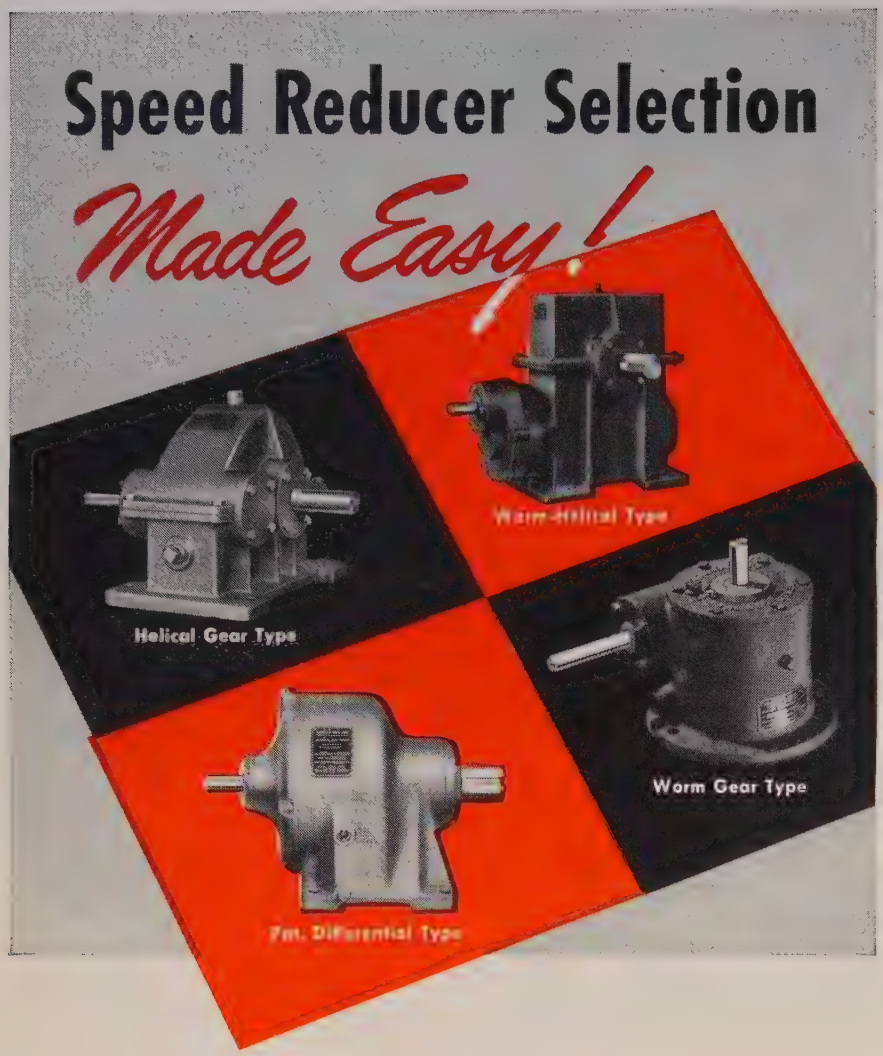
District Offices and Distributors in Principal Cities of United States and Canada

## TORRINGTON *NEEDLE* BEARINGS

NEEDLE • SPHERICAL ROLLER • TAPERED ROLLER • STRAIGHT ROLLER • BALL • NEEDLE ROLLERS

# Speed Reducer Selection

## *Made Easy!*




When speed reduction requirements are within the fractional through 85 hp range, there is no selection problem for the design, consulting or plant engineer.

He *knows* that Winsmith can meet his specifications *precisely* with the world's most complete line within this category. And even more important, he *knows* that recommendations from Winsmith's engineering representatives can always be counted on to be practical and unbiased. That's only natural with so large a variety of standard units to choose from.

As one-of-a-kind replacements in the plant, or in quantities to serve as components on new machines, standard Winsmith Speed Reducers are a certain solution where ratings must be within the range of: 1/10 to 85 hp, 1.1: 1 to 50,000 : 1 ratio and 32 to 113,000 in. lbs. max. output torque.

50th Anniversary

Fully descriptive literature, which includes suggestions for simplifying and expediting selection, will be mailed at your request.

MEMBER OF AGMA

**WINSMITH SPEED REDUCERS**

**WINSMITH, Inc.**

14 EATON ST.
Springville (Erie County) N. Y.


# CALENDAR OF MEETINGS

*† Denotes first listing in this column.*

**October 1-2, American Machine Tool Distributors Association:** Annual meeting, Chalfonte-Haddon Hall, Atlantic City, N. J. Association address: 1900 Arch St., Philadelphia. Executive secretary: Thomas A. Fernley Jr.

**October 1-4, Association of Iron & Steel Engineers:** Fall meeting, Sherman Hotel, Chicago. Association address: 1010 Empire Bldg., Pittsburgh. Managing director: T. V. Ess.

**October 2-4, Society of Industrial Packaging & Materials Handling Engineers:** Exposition and "short course," Hotel Cleveland, Cleveland. Society address: 20 W. Jackson Blvd., Chicago. Secretary: H. E. Brill.

**October 3-5, Pressed Metal Institute:** Fall meeting, Drake Hotel, Chicago. Institute address: 13210 Shaker Square, Cleveland 20. Managing director: Orrin B. Werntz.

**†October 5-7, Society of Industrial Designers:** Annual convention, Moraine Hotel, Highland Park, Ill. Society address: 48 E. 49th St., New York 17. Secretary: Robert H. Hose.

**October 8-12, National Hardware Show:** Grand Central Palace, Atlantic City, N. J. Managing director: Frank Yeager.

**October 8-13, Concrete Reinforcing Steel Institute:** Fall meeting, Grove Park Inn, Asheville, N. C. Institute address: 38 S. Dearborn St., Chicago 3. Managing director: H. C. Delzell.

**October 9-12, The Electrochemical Society Inc.:** Centennial—Fall convention, Hotel Statler, Detroit. Society address: 325 W. 102nd St., New York 25. Secretary: Henry B. Linford.

**October 10-12, Porcelain Enamel Institute Inc.:** Shop practices forum, Deshler-Wallick Hotel, Columbus, O. Institute address: 1010 Vermont Ave. NW, Washington. Secretary: Edward Mackaser.

**October 11, American Iron & Steel Institute:** Regional technical meeting, Hotel Warwick, Philadelphia. Institute address: 350 Fifth Ave., New York. President: Walter S. Tower.

**†October 11-12, Society for Advancement of Management:** Chicago Industrial Engineering Conference, Naval Armory, Chicago. Society address: 53 W. Jackson Blvd., Chicago 4. Chairman: Theodore W. Franks.

**†October 11-12, American Institute of Mining and Metallurgical Engineers & American Society of Mechanical Engineers:** Annual fuels conference, Roanoke Hotel, Roanoke, Va. Institute and Society address: 29 W. 39th St., New York 18. Institute secretary: Edward H. Robie; Society secretary: C. E. Davies.

**October 12-14, Metal Treating Institute:** Annual meeting, Detroit. Institute address: 271 North Ave., New Rochelle, N. Y. Executive secretary: C. E. Herington.

**October 13-14, American Society for Metals:** Annual seminar, Hotel Statler, Detroit. Society address: 7301 Euclid Ave., Cleveland. Secretary: W. H. Eisenman.

**October 13-17, Packing Machinery Manufacturers Institute:** Fall meeting, Mid Pines Club, Southern Pines, N. C. Institute address: 342 Madison Ave., New York 17. Secretary: Helen L. Stratton.

**October 14-18, American Hardware Manufacturers Association:** Fall meeting, Marlborough-Blenheim Hotel, Atlantic City, N. J. Association address: 342 Madison Ave., New York 17. Secretary: Arthur L. Faubel.

**October 15-17, American Gas Association:** Annual meeting, Kiel Auditorium, St. Louis. Association address: 420 Lexington Ave., New York 18. Secretary: Kurwin R. Boyes.

**October 15-18, American Welding Society:** Annual meeting, Book-Cadillac Hotel, Detroit. Society address: 33 W. 39th St., New York 18. Secretary: J. G. Magrath.

*(Continued on p. 103)*

(Continued from p. 100)

**tober 15-18, Society for Non-Destructive Testing Inc.:** Annual meeting, Hotel Detroiter, Detroit. Society address: Box 710, Evanston, Ill. President: W. E. Thomas.

**tober 15-19, American Society for Metals:** National Metal Congress & Exposition, Statler Hotel, Detroit, and Michigan State Fairgrounds. Society address: 7301 Euclid Ave., Cleveland. Secretary: W. H. Eisenman.

**tober 15-19, The World Metallurgical Congress:** Hotel Statler, Detroit. Sponsored by American Society for Metals. Manager: W. H. Eisenman; director: Dr. Zay Jeffries.

**October 15-19, National Association of Manufacturers:** Annual institute on industrial relations, Lake Placid Club, Essex County, New York. Association address: 14 W. 49th St., New York 20. Institute director: Sibyl S. Patterson.

**ctober 16-19, Scientific Apparatus Makers Association:** Record controller & midyear meeting, Seaview Country Club, Absecon, N. J. Association address: 20 N. Wacker Drive, Chicago 6. President: Kenneth Anderson.

**ctober 17-18, Steel Shipping Container Institute Inc.:** Fall meeting, Pierre & Hampshire House, New York. Institute address: 570 Lexington Ave., New York 22. Secretary: L. B. Miller.

**ctober 18-20, Anti-Friction Bearing Manufacturers Association:** Fall meeting, The Homestead, Hot Springs, Va. Association address: 60 E. 42nd St., New York 17. Secretary-manager: H. O. Smith.

**ctober 18-20, National Association of Corrosion Engineers:** Annual meeting, south-central region, Corpus Christi, Tex. Association address: 919 Milam Bldg., Houston 2. Executive secretary: A. B. Campbell; meeting chairman: George A. Mills.

**ctober 19-20, American Society of Tool Engineers:** Semi-annual directors' meeting & south-central regional meeting. Vendome Hotel, Evansville, Ind. Society address: 10700 Puritan Ave., Detroit 21. Executive secretary: Harry E. Conrad.

**ctober 22-24, American Mining Congress:** 1951 metal and nonmetallic mineral mining convention, Biltmore Hotel, Los Angeles. Congress address: Ring Bldg., Washington 6. Secretary: Julian D. Conover.

**ctober 22-24, American Standards Association:** Annual meeting & national standardization conference, Waldorf-Astoria Hotel, New York. Association address: 70 E. 45th St., New York. Secretary: G. F. Hussey Jr., Adm., USN, Ret.

**tober 22-24, Packaging Institute:** Fall meeting, Commodore Hotel, New York. Institute address: 342 Madison Ave., New York 17. Secretary: Laurence V. Burton.

**ctober 22-25, American Institute of Steel Construction Inc.:** Fall meeting, The Greenbrier, White Sulphur Springs, W. Va. Institute address: 101 Park Ave., New York 17. Executive vice president: L. Abbott Post.

**tober 22-25, The Wire Association:** Annual convention, La Salle Hotel, Chicago. Association address: 300 Main St., Stamford, Conn. Executive secretary: Richard E. Brown.

**tober 22-26, American Association of Electrical Engineers:** General fall meeting, Hotel Cleveland, Cleveland. Association address: 33 W. 39th St., New York 18. Secretary: H. H. Henline.

**tober 25-26, Gray Iron Founders Society Inc.:** Fall meeting, Edgewater Beach Hotel, Chicago. Society address: 210 National City—E. 6th St. Bldg., Cleveland. Executive vice president: Donald H. Workman.

**ctober 26-27, American Institute of Mining and Metallurgical Engineers, National Open Hearth Steel Committee:** Annual meeting, Southern Ohio section, Deshler Wallick Hotel, Columbus, O. Institute address: 29 W. 39th St., New York 18. Section chairman: V. W. Jones, Armco Steel Corp., Middletown, O.

**tober 28-30, Conveyor Equipment Manufacturers Association:** Fall meeting, The Homestead, Hot Springs, Va. Association address: 1129 Vermont Ave., Washington 5. Executive vice president: R. C. Sollenberger.

**October 29-31, American Gear Manufacturers Association:** Semi-annual meeting, Edgewater Beach Hotel, Chicago. Association address: 302 Empire Bldg., Pittsburgh 22. Secretary: Newbold C. Goin.

**October 29-31, National Lubricating Grease Institute:** Fall meeting, Edgewater Beach Hotel, Chicago. Institute address: 4638 Nichols Parkway, Kansas City 2, Mo. Executive secretary: Harry F. Bennetts.

**October 31-November 2, Foundry Equipment Manufacturers Association:** Fall meeting, The Homestead, Hot Springs, Va. Association address: Engineers Bldg., Cleveland 14. Executive director: Arthur J. Tuscany.

**October 31-November 2, Porcelain Enamel Institute Inc.:** Annual meeting, The Greenbrier, White Sulphur Springs, W. Va. Institute address: 1010 Vermont Ave. N.W., Washington 5. Secretary: Edward Mackaser.

**October 31-November 2, Association of American Battery Manufacturers Inc.:** Annual meeting, Palmer House, Chicago. Association address: 2706 Tower Bldg., Akron. Secretary: V. L. Smithers.

## NOVEMBER

**November 1-2, Industrial Management Society:** Annual time-motion study and management clinic, Sheraton Hotel, Chicago. Society address: 35 E. Wacker Drive, Chicago 1.

**November 1-4, National Tool & Die Manufacturers Association:** Annual convention, Statler Hotel, St. Louis. Association address: 906 Public Square Bldg., Cleveland. Executive secretary: George S. Eaton.

**†November 2-3, Eastern States Blast Furnace & Coke Oven Association:** Joint fall meeting with Blast Furnace Association of Chicago District, Hotel Statler, Cleveland. Association address: 2300 Chester Ave., Cleveland 1 Secretary: Benjamin B. Frost.


When it comes to production- come to Hartford Special

Automatic Thread Roller

ROLLS 120 to 150 PCS. PER MIN.

Completely Automatic Feed
Filtered Lubrication
Table Top Working Level
Vibration Free Operation
Quick, Easy Set-ups
Class 3 Fits

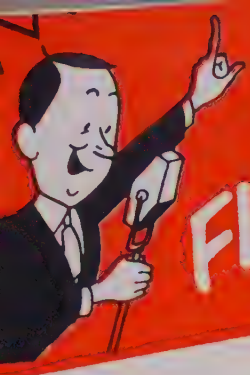
diam. from .086" to .190"
thread lengths from ⅛" to 1½"

WRITE FOR BULLETIN NOW!

Subject to prior sale
IMMEDIATE DELIVERY
OF LIMITED NUMBER OF MACHINES

HARTFORD Special
...the best buy in the long run

THE HARTFORD SPECIAL MACHINERY CO.
HARTFORD 12, CONNECTICUT



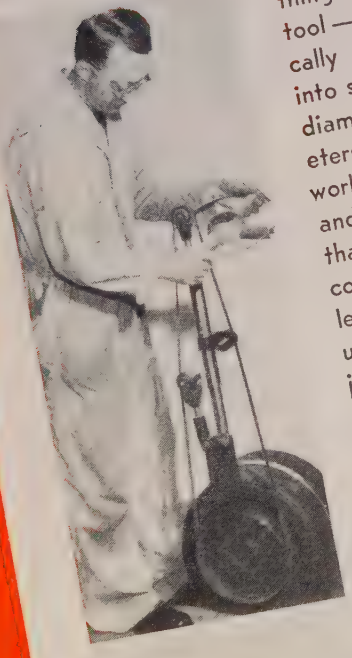
FLASH

# All the latest

new

## BUSH YOKE SANDER

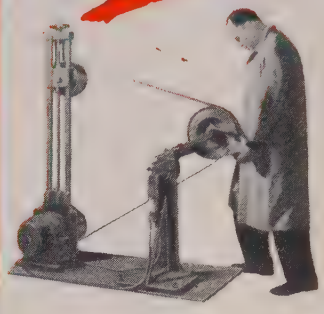
Manufactured and Sold by
BUSH MANUFACTURING CO.
Clawson, Michigan



You can do almost anything in sanding on this tool — use it either vertically or horizontally, get into small contours (inside diameters, outside diameters), and close radius work. Finish inside surfaces and other spots and areas that have always been comparatively costly problems to handle on a volume basis. It might be just what your present production needs. Why not talk it over with a BEHR-MANNING Abrasives Engineer.

new

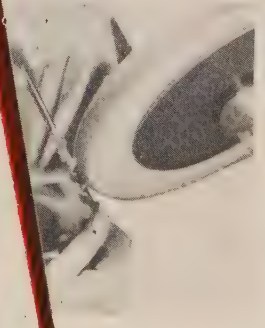
## The BADER BELT POLISHER

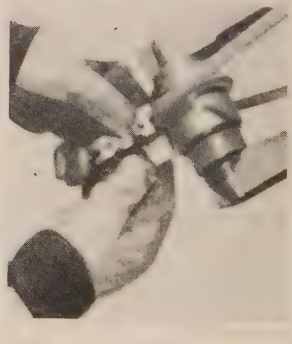


Manufactured and Sold by
STEPHEN BADER & CO.
Rockville Centre, New York

This versatile machine enables use of a wide range of diameters in contact wheels — from 2" to 18" — permitting the finishing of convex or concave surfaces. The contact wheel is an idler, and as the drive wheel *pulls* the belt past the work, no chatter occurs in even heavy cuts. Wheels as well as belts can be changed in only seconds. Wheels may be of any material giving the desired flexibility and contour — cloth, soft rubber, felt, etc.

Your BEHR-MANNING Abrasives Engineer will give you full details.





BEHR-MANNING

NORTON

# BEHR-MANNIN

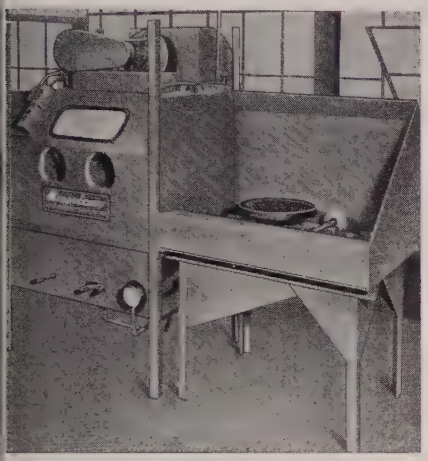
COATED ABRASIVES · SHARPEN

BEHR MANNING OVERSEAS INC., NEW ROCHELLE, N. Y.,

# New Products and Equipment

## Wet Blaster Has Slurry Pump

A vertical pump for slurry recirculation is introduced in a wet blast furnace made by American Wheelabrator & Equipment Corp., Mishawaka, Ind. Because of its position, the pump eliminates suction piping,



valves and fittings. Pump is primed by flooded-type suction, making operation of valves unnecessary for starting or stopping. Absence of packing glands eliminates loss of slurry through leakage. Abrasives cannot plug the pump impellor when the machine is shut down and the hopper need not be drained before pump is removed.

Reset timer is available to tell number of blasting hours abrasive has been in the machine. When abrasive needs changing, an air ejector blows the slurry through a length of hose, either to a sump pit or to barrels. Wet blaster performs work for which dry blasting is too severe, i.e.—work with thin edges and sharp corners or work needing precision cleaning. Abrasive sizes stocked range from 80 to 2500 mesh.

**Check No. 1 on Reply Card for more Details**

## Class H Insulated Transformers

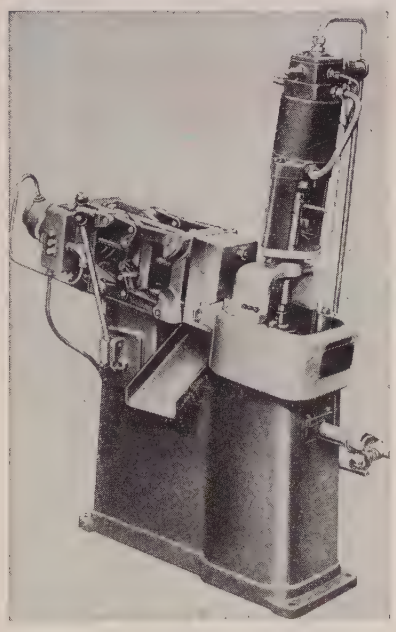
A line of dry-type transformers with class H insulation for station auxiliary, unit substation and network service is offered by Pennsylvania Transformer Co., Box 330, Canonsburg, Pa. These are available as ventilated or sealed-in-nitrogen units. Ventilated units are made in ratings up to 3000 kva and in voltages up to 15 kv.

Class H transformers are fire and explosion-resistant, moisture-repellant and heat-stable. Insulation consists of inorganic materials such as glass, porcelain and asbestos bonded or impregnated by silicone resins or rubbers, or by fluorocarbon resins. Exposed to air, class H insulation has about 100° C temperature advantage over class B insulation.

**Check No. 2 on Reply Card for more Details**

## More Pressure, Larger Castings

Higher pressures exerted on molten metal from normal airline pressures of 80-100 pounds are a result of improvements made on model M55A die casting machine by DCMT Sales Corp., 164 Duane St., New York 13, N. Y. Called model IMP-96, this im-



proved machine offers a pilot-operated impact-type injection cylinder with slide valve in head, controlled by a trip lever and employing a safety interlock valve to prevent metal injection before dies are fully closed. Also incorporated is the double toggle air-operated die unit of larger capacity and locking load. Results can mean larger and heavier castings than were produced on previous models.

Improved model operates on standard 80 psi airline, consuming 0.55 cu ft of free air per cycle of operation. It exerts 1620 pounds pressure on metal with 1½-inch diameter plunger. Size of die plates is 9 x 6 x 1½ inches; pot capacity for zinc is 45 pounds; floor space is 30 x 12 inches, and net weight is 450 pounds.

**Check No. 3 on Reply Card for more Details**

## Butyl Process Goes Outdoors

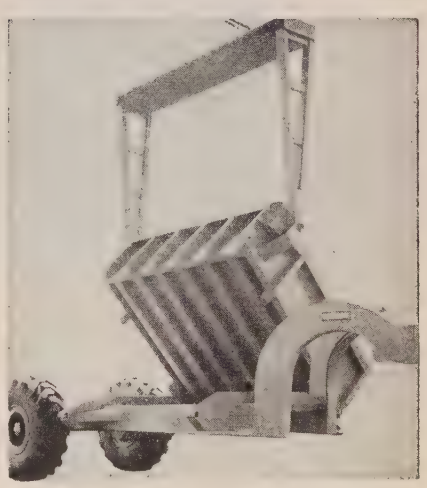
Butyl-molded current transformers, introduced previously for indoor use, are being offered in a line for both indoor and outdoor application by the meter and instrument department, General Electric Co., Schenectady 5, N. Y. Transformers can be used on single-phase and polyphase circuits. First of the line is type JKP-O, a 600-volt window-type unit with primary ratings of 200, 400 and 600 amperes, designed to carry 200 per cent of rated primary current continuously. When mounted on an adapter plate, it meets dimensional requirements of EEI specification MS2 for low voltage metering current transformers.

Core is of silicon strip steel, secured to the base by a metal band. After assembly of core and base, the secondary is wound with copper wire. Core and winding are preheated and placed in a mold, into which uncured butyl is forced. Molded insulation permits compact designs meeting standard mounting dimensions for indoor applications, and is completely waterproof for outdoor service.

**Check No. 4 on Reply Card for more Details**

## Side Dump Has 15 Tons Capacity

Easton Car & Construction Co., Easton, Pa., is introducing its model TL-1015, a lift-door side-dump of 15 tons capacity, first in a line of semi-trailers of goose-neck construction



planned by the company. Lift door body is designed for fixed point dumping, using electric overhead dumping system. Pushbutton controlled overhead hoist operates a dual hook that engages the two dumping bars on the lift door. Door is raised clear of the load, then serves as a bail to raise the body to the complete discharge angle. Maximum dumping angle is 70 degrees.

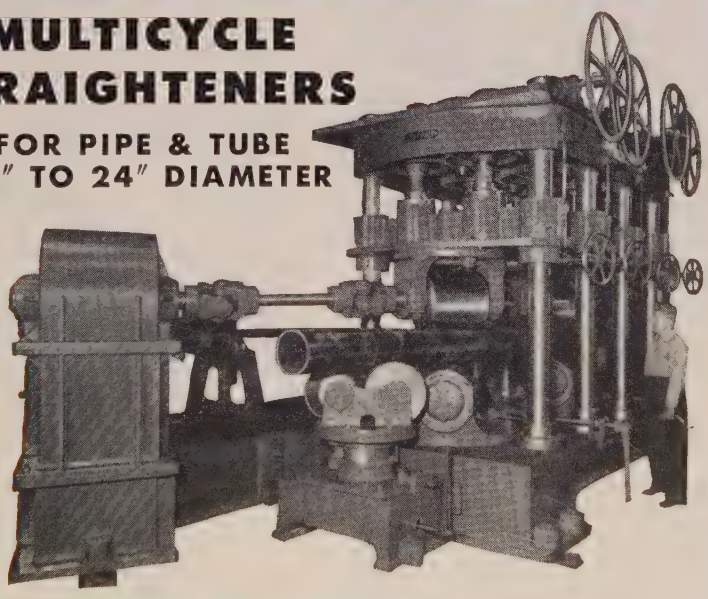
Body and trailer frame are of all-welded steel construction, with heavy box-section reinforcements throughout. Body floor is reinforced by an oak floor cushion and a replaceable

# Straighten Pipe & Tube Up To 24" At High Speed

MEDART

MULTICYCLE STRAIGHTENERS

FOR PIPE & TUBE 1/16" TO 24" DIAMETER



**THERE IS A DIFFERENCE IN STRAIGHTENERS!** Only the Medart Multicycle offers a double straightening cycle, imposed by two bending stations to insure end-to-end straightness.

**GENTLER HANDLING OF PIPE WALL!** For large thin wall pipe or tubing the Multicycle employs dual-type bending rolls to distribute the straightening load around the tube circumference and eliminate usual single point high pressure concentration.

**UNBALANCED TWISTING TORQUE ELIMINATED!** Both top and bottom feed rolls are driven on the Medart Multicycle for balanced torque about the neutral axis of the workpiece.

**SINGLE DRIVING MOTOR!** Only one driving motor is required, insuring positively synchronized roll speed, longer roll life.

**NO RUBBING GUIDES!** All guiding action is accomplished by rollers mounted in anti-friction bearings — no friction or shoe-type guides are required.

**COMPARE THE MULTICYCLE ADVANTAGES!** Also straightens solid rounds — motorized setup adjustment on larger models — all gears running in oil — Timken bearing equipped throughout — many other patented features.

*Write for Catalog*

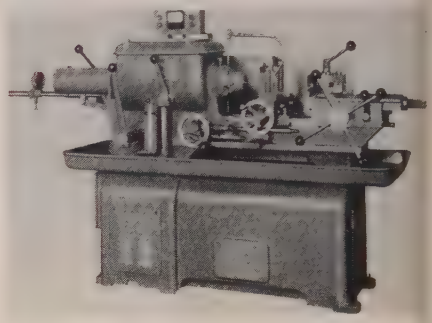
**THE MEDART COMPANY** 3535 DeKALB ST. ST. LOUIS 18, MO.


steel liner plate. To complete this line, the company will make lift door trailers available to 30 tons capacity. Other models will also incorporate 15 and 30-ton automatic drop doors, hydraulically dumped units for pit, mine and construction services.

**Check No. 5 on Reply Card for more Details**

## Turret Lathe Cut to Essentials

Improvement of its No. 2 turret lathe to use standard assemblies and eliminate complex devices required only for rare operations is announced by Simmons Machine Tool Corp., Albany 1, N. Y. Lathe has 1¼-inch bar capacity; is designed for rapid production of precision parts and a



variety of bar and chucking operations. It features remote speed control, helical gears in the headstock, and an electrical tachometer that indicates spindle speed. Speed change, formerly selected by hand wheel, is done by pushbutton operation. The electric control permits a wide range of reversible speeds and incorporates overload protection.

Spindle is mounted so opposed anti-friction bearings on the head end control longitudinal adjustment. The straight, precision roller bearing on the rear end allows for expansion without disturbing the spindle adjustment. Spindle drive is obtained through standard, separable-link V-belting. Power feed to the turret ram is provided through a three-speed gear box, and a worm wheel mounted on a turret saddle. A motor-driven coolant pump, with piping, is standard equipment.

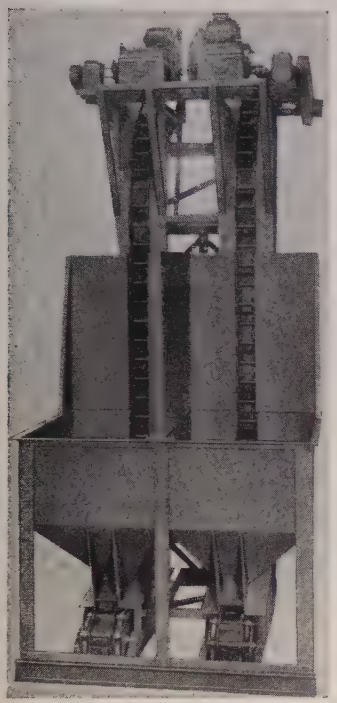
**Check No. 6 on Reply Card for more Details**

## Conveyor Is Mass Feeder

Addition of a continuous conveyor feeder unit to its standard line of materials handling equipment is announced by May-Fran Engineering Inc., 1725 Clarkstone Rd., Cleveland 12, O. The feeder handles small forgings, castings, stampings and machined parts during heat treating, sandblasting, washing, cleaning and other processing operations in which mass feeding and handling is neces-

ary. Designed to recess 68 inches to the floor, the unit can be used lso as a hopper storage bin prior o final discharge of parts for proc-ssing. Because the conveyor belt it-elf forms the bottom of the hopper, ridging is completely eliminated and continuous uniform flow of parts is ssured. Design of the flights pre-ents jamming of parts in turns of ne hinged steel belt.

Feeder units are made having al-ost any belt width required. Height

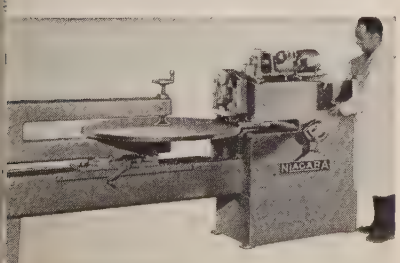


individual unit is dependent upon tended application and size of hop-r and can be varied to meet specific eds. An additional feature is a riable speed drive that regulates rts flow from one processing stage another.

eck No. 7 on Reply Card for more Details

## rcle Shear and Flanger

Alternate production of disks and ads is accomplished on a high-eed circle shear and flanger, of-




ed by Niagara Machine & Tool orks, 637 Northland Ave., Buffalo N. Y. Conversion from one to the er operation is accomplished in 20 30 minutes, while setup can be changed quickly from one size job to another. It requires no blanking, forming or drawing dies for the many different size heads. As a circle shear, the machine cuts sheet up to 8 gage mild steel or 12 gage stainless. Disks 8 to 58 inches in diameter are produced from square blanks and disks as large as 75½ inches in diameter can be cut from octagonal blanks.

Converted to flanging, it turns high flanges up to 1½ inches deep from circular disks. Upper roll is moved down by power with speed adjustable to suit diameter and thickness of blank. Standard flanging rolls form a ⅜-inch radius at the root; head dimeters accommodate range from 18½ to 73½ inches.

Check No. 8 on Reply Card for more Details

## Increasing Thread Capacity

A workholding and leading device for multiple-form cutter thread milling on lathes or milling machines is offered by Swisma Division, Gubelin International Corp., 35 W. 53rd St., New York 19, N. Y. Designed to make possible threads of greater ac-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60" x 48" Bailey Valve for Horizontal Gas Main.

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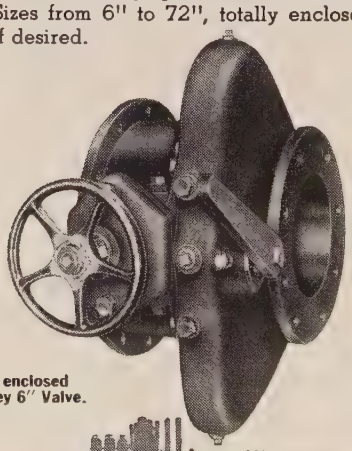

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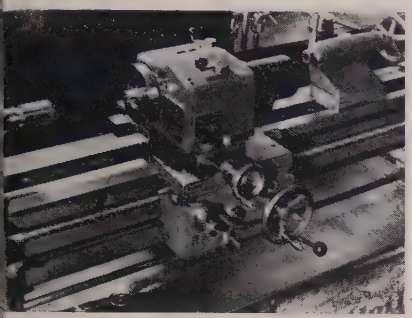
uracy and better finish at high peeds, the attachment also is used to rovide the lead for multi-rib wheel hread grinding on plain grinders. hort workpieces, to approximately inches in diameter, are mounted in he three-jaw chuck provided with he attachment. Pieces up to 7 ıches diameter or of irregular con- our can be mounted on the face late which also is provided. Long



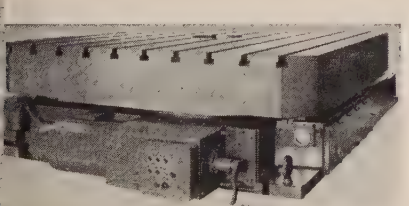
ork, up to 2½ inches diameter, will ass through the attachment spindle. ultiple threads are produced with- it difficulty provided lead is no arser than six threads per inch.

Attachment is integrally powered y a 1/30-hp, two speed (750 and 1500 m) motor operating at reduction 1081 to 1. Motor is reversible to rovide for cutting left and right- and or internal and external threads. x spindle speeds are available by arious combinations of motor speed d internal gearing, shifted by a ver.

eck No. 9 on Reply Card for more Details

## able Has Hydraulic Lift

A hydraulic clamping and raising vice, built in and controlled by shbutton panel at the operator's sition, is featured in a rotating ble developed by Ohio Machine ol Co., Kenton, O. The table is



curately graduated in ½ degrees d has a precision indexing unit, nsisting of dial indicator and ad- stable stops. Its standard specifi- tions include a table size of 84 x inches; overall height, 27 inches; e slots, 1¼ inches; weight, approxi- ately 37,500 pounds; and load ca- city, 150,000 pounds. A hydraulic t for raising the table top a few ousandths from its bearings is sup- rted by an antifriction thrust bear-


Electro HIGH SPEED

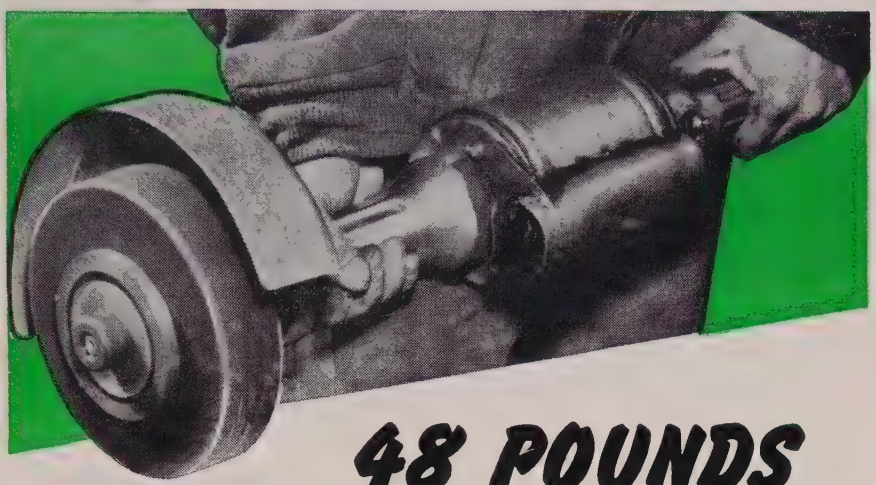


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Figure it as a 45% time saving or as a 48 pound production gain. Either way, it is a new high in grinding wheel efficiency and economy. • On grinding from 24" to 20" diameter on annealed malleable castings, Electro removed 6.8 lbs. of metal per cubic inch of wheel at 10.4 lbs. per hour. Electro removed 153 lbs. as against the average of 105 lbs. for competitive wheels. • May we show you with this or any other types of Electro wheels that comparable gains are immediately possible for you? A demonstration will place you under no obligation whatever. Write, wire or phone.

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Electro

RESIN BONDED HIGH SPEED GRINDING WHEELS

ing, making revolving possible with maximum load. Power rapid traverse in either direction through a built in high torque motor with magnetic brake is provided with contact pushbutton control. Machine has nonmetalic bearing surfaces between table top and base.

**Check No. 10 on Reply Card for more Details**

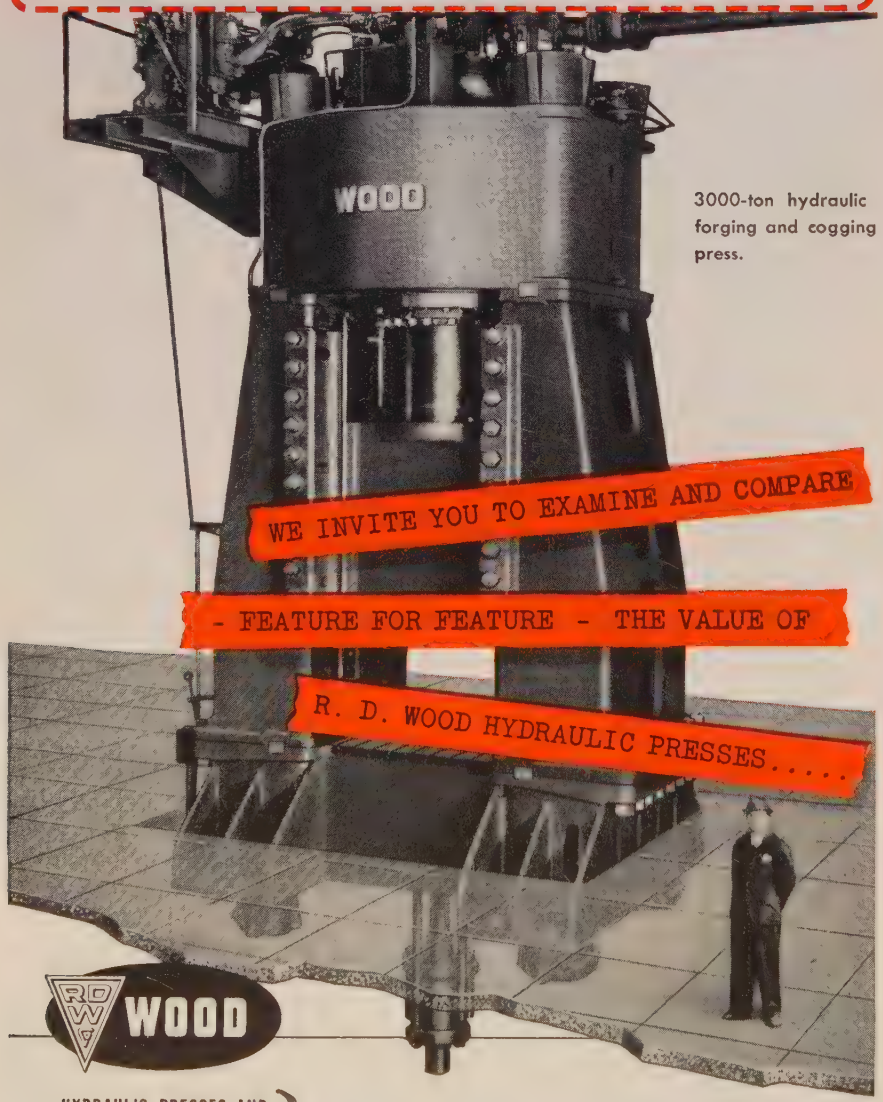
## Filter Cleans Compressed Air

Model B Condensifilter, a device that removes water, oil and sludge from compressed air, is a development of Hankison Corp., 395 Renton Bldg., 1501 Beaver Ave., Pittsburgh 33. Its design combines in one unit a dehydrating device, mechanical filter and self-purging trap. It measures 15 inches high by 9 inches in diameter, and has a capacity of 30 cfm at 100 psi. The model is recommended for purifying and dehydrating compressed air used in combustion and process control.

In operation, air is admitted through the side, directed through the condensing section where it is dehydrated and passed through the filter. Total drop in pressure is less than 2 psi at 100 psi working pressure. Condensing unit is composed of a series of copper coils through which cold wate flows. Filter is made of five hex agonal filter chambers in parallel each chamber wrapped with seve layers of canton flannel. It provide more than 4 square feet of filterin area and removes pieces as small a 1.0 to 2.0 microns. Removal of 1½ inch SAE nut dismantles entire filte for cleaning and service.

**Check No. 11 on Reply Card for more Detail**


If it's an R. D. WOOD... It's Good*

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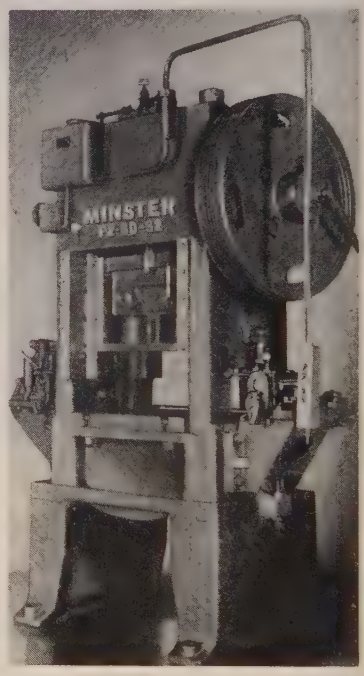
## Automatic Production Press

Minster Machine Co., Minster, O. is offering its automatic production press, the Piece-Maker. The press features: Flywheel type combination air operated friction clutch and brake; pendent pedestal or press mounted




clutch control; four extra long gibs with eight guiding surfaces controlling slide in two directions; adjustable bronze ways on each corner of slide; long sleeve type manually-operated slide adjustment; and four-piece tie rod construction.

Series is available in capacities of 20, 30, 45, 60, 75, 100 and 150 tons. Speeds range from 200 to 400 strokes per minute on the 20-ton unit, to 75 to 150 on the 150-ton unit. Press has a double throw, full eccentric shaft and is offered in the flywheel type. All presses in the series are offered with variable speed drives.

**Check No. 12 on Reply Card for more Detail**

## Power Units Rated at 40 kv

Maximum voltage output is rated at 40 kv on models 402 and 402R, added to the line of high voltage dc RF-type power units made by Inductograph

roducts Inc., 236 W. 55th St., New ork 19, N. Y. This maximum voltage akes 350 microamperes of current vailable; at 30 kv, 1¼ million milli-mperes of current are available. Mo-el 402 is continuously variable from 0 to 40 kv from front panel con-rol. Model 402R incorporates voltage tabilization with front panel control arying output from 15 to 40 kv.

heck No. 13 on Reply Card for more Details

## ightweight Air Hammer

Model G-200 air hammer, made by alsbury Corp., Los Angeles 1, alif., is a lightweight hand tool. Vorking at 120 psi it strikes up to 000 blows per minute with maximum orce, or may be metered to any wer speed or striking power by a nger trigger action. Safety feature a three-point ball bearing chuck iat locks tools in working position nd eliminates hazard of tool ejec-on.

heck No. 14 on Reply Card for more Details

## oncorrosive Flux

Mild acidity of No. 30 flux devel-ped by Superior Flux & Mfg. Co., leveland 13, O., is neutralized by the eat of the soldering operation, leav-g a residue that is normally noncor-sive, nonhygroscopic, nonconductive electricity and nonfuming. It is commended for soft solder appli-tions where rosin base fluxes are satisfactory and where zinc chlor-e or other strong acid fluxes can-t be used because of corrosion fac-r.

eck No. 15 on Reply Card for more Details

## dexable Blade Face Cutter

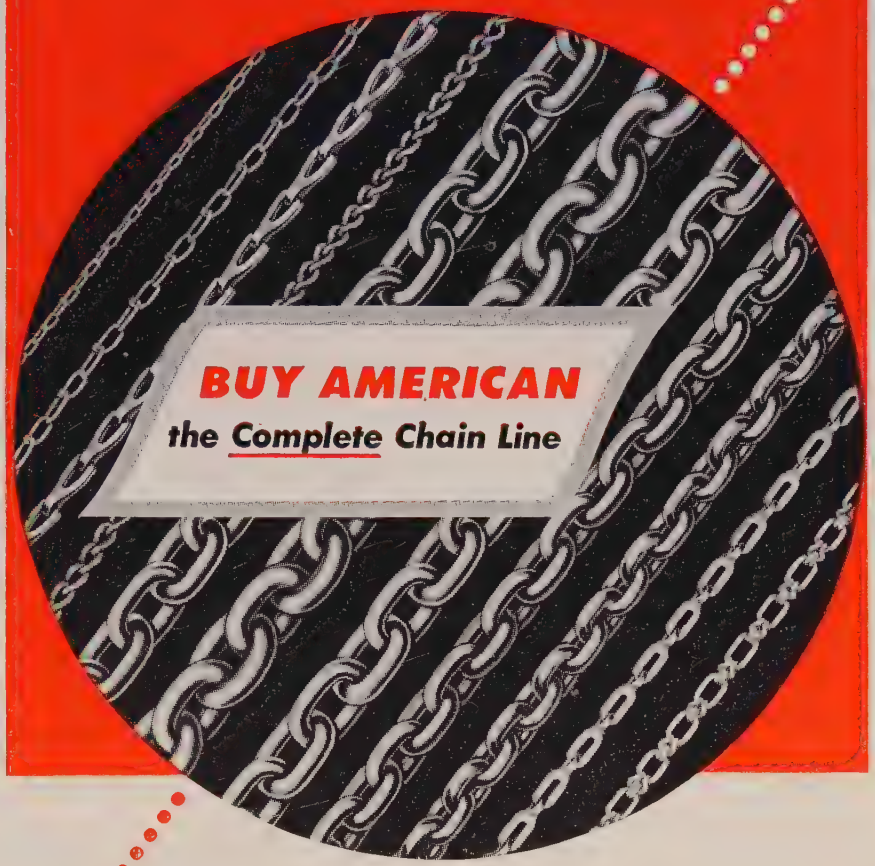
Detroit Milling Cutter Co., Farm-gton, Mich., announces a new type solid carbide indexable blade face lling cutter for milling cast armor ate and other difficult steel ma-ining jobs. It retains the Futur-l principle of multiple production ns without cutter grinding. When ll, solid carbide blades are indexed a new cutting edge and the clear-ce angles are taken care of by sition of the blade in the cutter dy. Blade is square and is available three optional sizes ranging from to ¾-inch.

eck No. 16 on Reply Card for more Details

## mplifies Roller Chain Repair

Disassembling, repairing or con-cting roller chain is simplified by e use of the new Baldwin-Rex chain e available from Baldwin Duck-rth Division, Chain Belt Co., ringfield, Mass. It makes it possible


for Your Own Use...
for the Products You Make...

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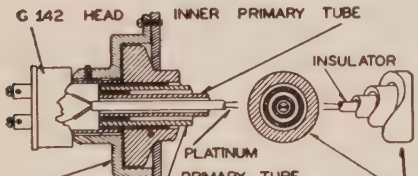
THERMOCOUPLES

A background of many years of experience and "know-how" go into the production of Gordon Platinum, Platinum-Rhodium Thermocouples. From this experience has evolved the Gordon policy which calls for the utmost in quality and service, the utmost in value to clients. That is why Gordon platinum wire is carefully checked for thermocouple accuracy against a master thermocouple...calibrated and certified by the National Bureau of Standards.

The porcelain insulation and protecting tubes which go into a complete thermocouple assembly are of the finest quality obtainable. They are the best known means of preventing contamination of the elements which result in false e.m.f. values. Also, the Gordon G-142 head which goes




into a complete thermocouple assembly is light in weight and permits easy replacement of new elements into a protecting tube assembly.

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to take apart single or multiple strand roller chain. Vise is made in two sizes: No. 1 for single strand roller chains from ½ through 1-inch pitch, for double pitch chains of 1, 1¼ and 1½-inch pitch and for double strand chains of ½, ⅝ and ¾-inch pitch. No. 2 is for single strand chains of 1 through 2-inch pitch and for double strand chains from 1 to 2-inch pitch.

**Check No. 17 on Reply Card for more Details**

## Drill Holes at Any Angle

Multi-Angle drill unit, announced by Commander Mfg. Co., Chicago 24, Ill., is designed to provide freedom of setup to simplify drilling holes at any angle. Powered by a heavy duty flexible shaft with hydraulic actuation of full 4-inch stroke, it is a compact drill head that can be mounted on jigs and fixtures or built into special machines.

**Check No. 18 on Reply Card for more Details**

## Washes Away Grease

A self-emulsifying solvent for washing away grease is introduced by Curran Corp., Lawrence, Mass. It can be used for cleaning carburetors, fuel pumps, diesel injectors, pistons, oil coolers, cylinder heads, pneumatic tools and metal parts. It is sprayed or brushed on and then hosed off.

**Check No. 19 on Reply Card for more Details**

## Demineralizing Unit

Penfield Mfg. Co., Meriden, Conn., announces a Mono-Bed demineralizing unit. Cation and strong base anion exchangers are mixed in a single unit tank to provide in one container the equivalent of a large number of multiple bed systems. Raw water passes through the Mono-Bed column once and comes out with a mineral content of virtually zero.

**Check No. 20 on Reply Card for more Details**

## Precut Masks and Gaskets

Known as Quik-Masks, self-adhesive, precut masks and gaskets made by W. H. Brady Co., Chippewa Falls, Wis., are applied without moistening to the areas requiring protection. They provide protection during spray painting, cleaning, plating, machining, tumbling, sandblasting and other production operations.

**Check No. 21 on Reply Card for more Details**

## Peg Rack Truck Protects Parts

Armatures, rotors, gears and other parts can be moved from one operation to another in production on the new peg rack truck built by Lloyd Engineering Co., Belleville 9, N. J. In transit, parts are hung on cushioning racks inclined at 15 degree angle and separated from each other as protection against damage by banging together.

**Check No. 22 on Reply Card for more Details**

## Power Hack Saw Blade

Powerflex, a high speed power hack saw blade, offered by G. W. Griffin Co., Franklin, N. H., is made with three separate pieces that are welded together. Back is tough steel for shock absorption, middle is medium hard steel for more power and straighter cutting, cutting edge is hard and tough for lasting sharpness.

**Check No. 23 on Reply Card for more Details**

## Floor Patching Compound

Permanent repairs to chuck holes or breaks in concrete floors can be made quickly by using Por-Rok quick setting cement, manufactured by Hallemite Mfg. Co., Cleveland 13, O. Compound is mixed with water and poured into the cleaned out hole or break. It is self-bonding, will not shrink and requires no troweling. Patch is ready for light loads in 15 minutes.

**Check No. 24 on Reply Card for more Details**

## Carbide Tipped Masonry Drill

Speed Spiral, a new carbide tipped masonry drill is available from Super Tool Co., Detroit 13, Mich. It is machined from the solid with a round nose supporting the carbide tip. Design provides ample dust clearance.

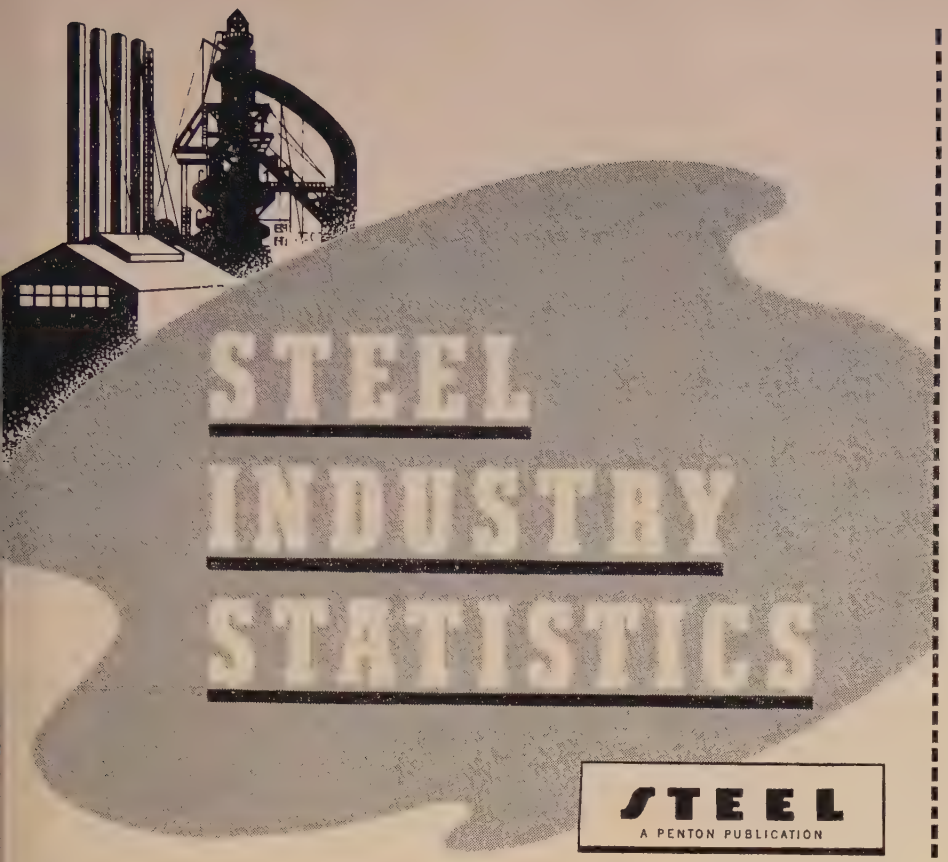
**Check No. 25 on Reply Card for more Details**

## Wire Harness Clamp

Security for bundles of wire in aircraft, heavy vehicles or mobile units is assured by a wire harness clamp available from Tinnerman Products Inc., Cleveland, O. It can be opened and closed without the use of tools and is built with an interlocking slot and tongue so it cannot be opened accidentally. It is made to be used singly or in tandem and to hold bundles 5/16 to 1¼-inch in diameter.

**Check No. 26 on Reply Card for more Details**

**FOR MORE INFORMATION**
on the new products and equipment in this section, fill in a card. It will receive prompt attention.



# STEEL INDUSTRY STATISTICS

STEEL
A PENTON PUBLICATION

October 1, 1951

**Want to know how much steel some company can produce? Look here for the answer. This is the first report in three years on the iron and steel producers' capacities**

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HERE's the steel going to come from? That's the estion on the lips of many metalworking executives d government officials concerned with building the ntry's defenses.

f you want to know, refer to the new issue of "Directory of the Iron and Steelworks of the ited States and Canada" being brought out by the erican Iron & Steel Institute.

Whether you want to know who produces open-rth steel in Pittsburgh or Rhode Island or how ch capacity each producer in the country has for -rolled bars you can find those answers, plus wers to hundreds of other questions in this 1951 ue, the first one published since 1948.

he directory shows in detail as of Jan. 1, 1951, facilities of each iron and steel company, as well the tonnage and variety of products produced.

As a service to the metalproducing and metalwork- industries, STEEL presents in this 16-page section summary tables from the new directory, with mission of the institute. Included in this section a table showing the home office address of each pany listed in the statistical summaries.

Appearance this year of the new directory is partic-rly timely in view of the great expansion that the last two years has pushed the iron and steel ustry's production capacities to all-time high rks. The new directory is the first to list more n 100 millions tons of steel capacity.

The direction the capacities have taken in the last three years also is revealed in the new issue of the directory. For instance, the effect of unprecedented demand over that period for consumer goods, such as automobiles, refrigerators and washing machines, is reflected in big increases in capacities for turning out the light flat-rolled products. From 1948 to 1951, hot-rolled sheet and strip capacity rose almost 30 per cent and cold-rolled sheet and strip capacity climbed 25 per cent.

Evidences that the national defense program was beginning to have an effect on the country's steel producing and finishing capacities also appear in the new directory. Capacity for heavy structural shapes, needed for plant expansions, and capacity for plate, needed for railroad freight cars and other heavy applications, increased 11.8 per cent and 5 per cent, respectively.

The directory also shows that in the last three years hot-rolling capacity of the industry increased 13 per cent, slightly above the 11 per cent increase in steel-producing capacity.

Even the present record capacities of the U. S. iron and steel industry, the world's largest, are due to be eclipsed soon through continuation of the industry's large-scale expansion program. From 1946 to 1950, inclusive, steel companies spent $2.4 billion for new and improved facilities. In 1951 and 1952, more than $2.5 billion are expected to be spent. This will help carry the annual U. S. capacity for producing steel for ingots and castings to 118 million net tons for 1953.

# Pig Iron

**Growing to support an expanding steel industry, the country's blast furnace capacity hits alltime peak**

BLAST FURNACES in the United States had a greater capacity on Jan. 1, 1951, than ever before for producing pig iron and ferroalloys. Marking the fourth consecutive year of increases, this date saw a capacity of 72,553,460 net tons. And more capacity is under construction. By the end of 1952 it will be 79,300,000 net tons.

The Jan. 1, 1951, capacity of 72,553,460 tons consisted of 71,455,060 tons for pig iron and 1,098,400 tons for ferroalloys. While this represented a continued increase in pig iron capacity it marked a slight decline in ferroalloy capacity. The latter was at an alltime high of 1,108,300 net net tons on Jan. 1, 1950.

The alltime record capacity of the country's blast furnaces today is not the result solely of the increase in the number of furnaces. True it is that the nu ber has been on the increase for four years. Bigge factor, over the long period, in setting the capaci record is the increase in the size and capacity of t individual furnaces.

A quarter of a century ago—1926—this country h 395 blast furnaces, with a total capacity of 57,28 437 net tons. That meant there was an average a nual capacity of 145,034 tons per furnace.

On Jan. 1, 1951, the 72,553,460 tons of capaci was provided by 250 furnaces. Thus, there was average annual capacity of 290,214 tons per furna or a 100 per cent increase over the 1926 figure.

Indicating that the increase in size and capacity furnaces is continuing, the 1951 average of 290,2 tons is an increase over the 289,464 tons of only year previous.

The capacity increase stems from increase in si of new furnaces, rebuilding of old furnaces to boo their size, improvement of furnace design, improv ment in blowing equipment that has permitted high rates of blowing and high top-pressures, and vario other improvements in blast furnace practice.

The rise in blast furnace capacity was necessitat by the big increase being made in steelmaking c pacity, and figures show a constancy has been mai tained in the ratio of one to the other. On Jan. 1948, the nation's open-hearth and bessemer ste capacities totaled 88,836,690 net tons, while bla furnace capacity was 67,438,930 tons. This was ratio of 0.76 ton of pig iron and ferroalloys to ea ton of steel. On Jan. 1, 1951, the open-hearth a bessemer steel capacities had soared to 96,931,8 tons, and blast furnace capacity had climbed to 7 553,460 tons. This gave a ratio of 0.75 tons of pig in and ferroalloys to each ton of steel.

From Jan. 1, 1948, when the institute last issu its directory showing in detail the capacities of t iron and steel industry, to Jan. 1, 1951, the numb of stacks for producing pig iron increased by 13 a the number for ferroalloys declined by 2. Th on Jan. 1, 1951, there were 236 stacks for pig ir and 14 for ferroalloys.

## Blast Furnace Capacity by Companies

| | PIG IRON | | FERROALLOYS | | Total annual capacity (N. T.) |
|---|---|---|---|---|---|
| | No. of stacks | Annual capacity (N. T.) | No. of stacks | Annual capacity (N. T.) | |
| Companies: | | | | | |
| Alan Wood Steel Company | 2 | 454,800 | ... | ..... | 454,800 |
| Allegheny Ludlum Steel Corporation | 1 | 96,000 | ... | ..... | 96,000 |
| Armco Steel Corporation | 5 | 1,341,000 | ... | ..... | 1,341,000 |
| Sheffield Steel Corporation | 1 | 274,800 | ... | ..... | 274,000 |
| Valencia Iron & Chem. Corp. | 1 | 27,000 | ... | ..... | 27,000 |
| TOTAL | 7 | 1,642,000 | ... | ..... | 1,642,000 |
| Barium Steel Corporation: | | | | | |
| Chester Blast Furnace, Inc. | 1 | 200,000 | ... | ..... | 200,000 |
| Bethlehem Steel Company | 29 | 10,170,000 | 2 | 180,000 | 10,350,000 |
| Brooke Iron Company (E. & G.) | 1 | 151,200 | ... | ..... | 151,200 |
| Colorado Fuel and Iron Corporation | 6 | 1,308,000 | ... | ..... | 1,308,000 |
| Crucible Steel Company of America | 2 | 532,000 | ... | ..... | 532,000 |
| Detroit Steel Corporation | 1 | 259,200 | ... | ..... | 259,200 |
| Eastern Gas and Fuel Associates | 1 | 200,000 | ... | ..... | 200,000 |
| Ford Motor Company | 3 | 939,600 | | | 939,600 |
| Globe Iron Company | ... | ..... | 1 | 90,000 | 90,000 |
| Granite City Steel Co. | 2 | 449,680 | ... | ..... | 449,680 |
| Inland Steel Company | 8 | 2,638,950 | ... | ..... | 2,638,950 |
| Interlake Iron Corporation | 6 | 1,244,860 | ... | ..... | 1,244,860 |
| International Harvester Company | 3 | 719,710 | | | 719,710 |
| Jackson Iron & Steel Company | ... | ..... | 1 | 93,000 | 93,000 |
| Jones & Laughlin Steel Corporation | 13 | 4,212,000 | .. | .... | 4,212,000 |
| Kaiser Steel Corporation | 2 | 876,000 | ... | ..... | 876,000 |
| Kaiser & Frazer Parts Corporation | 1 | 300,000 | .. | | 300,000 |
| Lavino & Company, E. J. | ... | ..... | 2 | 102,200 | 102,200 |
| Lone Star Steel Company | 1 | 366,600 | ... | ..... | 366,600 |
| National Steel Corporation: | | | | | |
| Great Lakes Steel Corporation | 3 | 1,100,000 | .. | .... | 1,100,000 |
| Hanna Furnace Corporation | 3 | 660,000 | 1 | 120,000 | 780,000 |
| Weirton Steel Company | 3 | 1,240,000 | | | 1,240,000 |
| TOTAL | 9 | 3,000,000 | 1 | 120,000 | 3,120,000 |
| New Jersey Zinc Company | ... | ..... | 2 | 112,000 | 112,000 |
| Newport Steel Corporation | 1 | 144,000 | .. | .... | 144,000 |
| Pittsburgh Coke & Chemical Company | 2 | 474,100 | ... | ..... | 474,100 |
| Pittsburgh Steel Company | 3 | 954,000 | .. | .... | 954,000 |
| Republic Steel Corporation | 21 | 6,592,000 | .. | .... | 6,592,000 |
| Sharon Steel Corporation | 3 | 709,620 | .. | .... | 709,620 |
| Shenango Furnace Company | 2 | 417,300 | .. | .... | 417,300 |
| Sloss-Sheffield Steel & Iron Company | 3 | 386,470 | 1 | 36,800 | 423,270 |
| Tennessee Products & Chemical Corp. | 3 | 142,510 | ... | ..... | 142,510 |
| Tonawanda Iron Division | 1 | 171,000 | ... | ..... | 171,000 |
| United States Steel Corporation: | | | | | |
| American Steel & Wire Company | 6 | 1,429,400 | . | ..... | 1,429,400 |
| Geneva Steel Company | 4 | 1,399,200 | ... | ..... | 1,399,200 |
| National Tube Company | 9 | 3,098,700 | .. | .... | 3,098,700 |
| Tennessee Coal, Iron & Railroad Co. | 9 | 2,468,500 | (a) | 29,000 | 2,497,500 |
| United States Steel Company | 49 | 17,420,400 | 4 | 335,400 | 17,755,800 |
| TOTAL | 77 | 25,816,200 | 4 | 364,400 | 26,180,600 |
| Wheeling Steel Corporation | 6 | 1,678,500 | ... | ..... | 1,678,500 |
| Woodward Iron Company | 3 | 592,760 | ... | ..... | 592,760 |
| Youngstown Sheet & Tube Company | 12 | 3,616,000 | .. | .... | 3,616,000 |
| GRAND TOTAL | 236 | 71,455,060 | 14 | 1,098,400 | 72,553,460 |

**TREND IN BLAST FURNACE CAPACITY—(Net Tons)**

| As of Jan. 1 | Coke Pig Iron | Charcoal Pig Iron | Ferroalloys | Tota |
|---|---|---|---|---|
| 1951 | 71,455,060* | ..... | 1,098,400 | 72,553, |
| 1950 | 70,348,920 | 40,320 | 1,108,300 | 71,497, |
| 1949 | 69,435,130 | 40,320 | 1,066,400 | 70,541, |
| 1948 | 66,301,610 | 40,320 | 1,097,000 | 67,438, |
| 1947 | 64,674,020 | 32,480 | 1,002,700 | 65,709, |
| 1946 | 66,311,410 | 32,480 | 996,700 | 67,340, |
| 1945 | 66,256,810 | 64,480 | 992,600 | 67,313, |
| 1944 | 66,344,780 | 56,190 | 990,300 | 67,391, |
| 1943 | 62,859,330 | 107,200 | 967,000 | 63,933, |
| 1942 | 59,211,850 | 106,560 | 1,075,570 | 60,393, |
| 1941 | 56,522,370 | 106,560 | 980,660 | 57,609, |
| 1940 | 54,635,740 | 95,580 | 992,320 | 55,723, |
| 1939 | 55,162,374 | 103,040 | 1,060,416 | 56,325, |
| 1938 | 55,618,752 | 103,040 | 1,060,416 | 56,782, |
| 1937 | 54,418,489 | 103,040 | 1,035,776 | 55,557, |
| 1936 | 54,803,720 | 103,040 | 947,520 | 55,854, |
| 1935 | 55,999,710 | 150,640 | 947,520 | 57,097, |
| 1934 | 56,209,620 | 150,640 | 883,008 | 57,243, |
| 1933 | 55,452,964 | 159,040 | 898,688 | 56,510, |

* All pig iron figures are lumped together.

# BLAST FURNACE CAPACITY BY PLANT LOCATION AND OPERATING COMPANY

| | PIG IRON | | FERROALLOYS | | Total annual capacity (N. T.) |
|---|---|---|---|---|---|
| | No. of stacks | Annual capacity (N. T.) | No. of stacks | Annual capacity (N. T.) | |
| **Alabama** | | | | | |
| Birmingham | | | | | |
| Republic Steel Corporation | 2 | 456,000 | ... | ..... | 456,000 |
| Sloss-Sheffield Steel & Iron Company | 2 | 281,230 | ... | ..... | 281,230 |
| Ensley | | | | | |
| Tennessee Coal, Iron & Railroad Co. | 6 | 1,452,800 | (a) | 29,000 | 1,481,800 |
| Fairfield | | | | | |
| Tennessee Coal, Iron & Railroad Co. | 3 | 1,015,700 | ... | ..... | 1,015,700 |
| Gadsden | | | | | |
| Republic Steel Corporation | 2 | 471,000 | ... | ..... | 471,000 |
| North Birmingham | | | | | |
| Sloss-Sheffield Steel & Iron Company | 1 | 105,240 | 1 | 36,800 | 142,040 |
| Woodward | | | | | |
| Woodward Iron Company | 3 | 592,760 | ... | ..... | 592,760 |
| TOTAL | 19 | 4,374,730 | 1 | 65,800 | 4,440,530 |
| **California** | | | | | |
| Fontana | | | | | |
| Kaiser Steel Corporation | 2 | 876,000 | ... | ..... | 876,000 |
| **Colorado** | | | | | |
| Pueblo | | | | | |
| Colorado Fuel and Iron Corporation | 4 | 918,000 | ... | ..... | 918,000 |
| **Illinois** | | | | | |
| Chicago | | | | | |
| Interlake Iron Corporation | 2 | 448,020 | ... | ..... | 448,020 |
| Granite City | | | | | |
| Granite City Steel Co. | 2 | 449,680 | ... | ..... | 449,680 |
| South Chicago | | | | | |
| International Harvester Company | 3 | 719,710 | ... | ..... | 719,710 |
| Republic Steel Corporation | 1 | 450,000 | ... | ..... | 450,000 |
| United States Steel Company | 11 | 4,196,700 | ... | ..... | 4,196,700 |
| Youngstown Sheet and Tube Company | 3 | 684,000 | ... | ..... | 684,000 |
| TOTAL | 22 | 6,948,110 | ... | ..... | 6,948,110 |
| **Indiana** | | | | | |
| East Chicago | | | | | |
| Youngstown Sheet and Tube Company | 2 | 779,200 | ... | ..... | 779,200 |
| Gary | | | | | |
| United States Steel Company | 12 | 4,721,400 | ... | ..... | 4,721,400 |
| Indiana Harbor | | | | | |
| Inland Steel Company | 8 | 2,638,950 | ... | ..... | 2,638,950 |
| TOTAL | 22 | 8,139,550 | ... | ..... | 8,139,550 |
| **Kentucky** | | | | | |
| Ashland | | | | | |
| Armco Steel Corporation | 3 | 777,000 | ... | ..... | 777,000 |
| **Maryland** | | | | | |
| Sparrows Point | | | | | |
| Bethlehem Steel Company | 8 | 3,252,000 | ... | ..... | 3,252,000 |
| **Massachusetts** | | | | | |
| Everett | | | | | |
| Eastern Gas and Fuel Associates | 1 | 200,000 | ... | ..... | 200,000 |
| **Michigan** | | | | | |
| Dearborn | | | | | |
| Ford Motor Company | 3 | 939,600 | ... | ..... | 939,600 |
| River Rouge | | | | | |
| Great Lakes Steel Corporation | 3 | 1,100,000 | ... | ..... | 1,100,000 |
| TOTAL | 6 | 2,039,600 | ... | ..... | 2,039,600 |
| **Minnesota** | | | | | |
| Duluth | | | | | |
| American Steel & Wire Company | 2 | 449,400 | ... | ..... | 449,400 |
| Interlake Iron Corporation | 1 | 131,660 | ... | ..... | 131,660 |
| TOTAL | 3 | 581,060 | ... | ..... | 581,060 |
| **New York** | | | | | |
| Buffalo | | | | | |
| Hanna Furnace Corporation | 3 | 660,000 | 1 | 120,000 | 780,000 |
| Republic Steel Corporation | 2 | 618,000 | ... | ..... | 618,000 |
| Lackawanna | | | | | |
| Bethlehem Steel Company | 6 | 2,472,000 | ... | ..... | 2,472,000 |
| North Tonawanda | | | | | |
| Tonawanda Iron Division | 1 | 171,000 | ... | ..... | 171,000 |
| Tonawanda | | | | | |
| Colorado Fuel & Iron Corporation | 2 | 390,000 | ... | ..... | 390,000 |
| Troy | | | | | |
| Republic Steel Corporation | 1 | 263,000 | ... | ..... | 263,000 |
| TOTAL | 15 | 4,574,000 | 1 | 120,000 | 4,694,000 |
| **Ohio** | | | | | |
| Campbell | | | | | |
| Youngstown Sheet and Tube Company | 4 | 1,450,800 | ... | ..... | 1,450,800 |
| Canton | | | | | |
| Republic Steel Corporation | 1 | 235,000 | ... | ..... | 235,000 |
| Cleveland | | | | | |
| American Steel & Wire Company | 2 | 530,000 | ... | ..... | 530,000 |
| Jones & Laughlin Steel Corporation | 2 | 540,000 | ... | ..... | 540,000 |
| Republic Steel Corporation | 5 | 1,685,000 | ... | ..... | 1,685,000 |
| Hamilton | | | | | |
| Armco Steel Corporation | 2 | 564,000 | ... | ..... | 564,000 |
| Hubbard | | | | | |
| Youngstown Sheet and Tube Company | 1 | 200,400 | ... | ..... | 200,400 |
| Jackson | | | | | |
| Globe Iron Company | ... | ..... | 1 | 90,000 | 90,000 |
| Jackson Iron & Steel Company | ... | ..... | 1 | 93,000 | 93,000 |
| Lorain | | | | | |
| National Tube Company | 5 | 1,818,400 | ... | ..... | 1,818,400 |
| Newellsville | | | | | |
| Sharon Steel Corporation | 1 | 148,620 | ... | ..... | 148,620 |
| Martins Ferry | | | | | |
| Newport Steel Corporation | 1 | 144,000 | ... | ..... | 144,000 |
| Massillon | | | | | |
| Republic Steel Corporation | 1 | 238,000 | ... | ..... | 238,000 |
| Portsmouth | | | | | |
| Detroit Steel Corporation | 1 | 259,200 | ... | ..... | 259,200 |
| Steubenville | | | | | |
| Wheeling Steel Corporation | 5 | 1,444,500 | ... | ..... | 1,444,500 |
| Struthers | | | | | |
| Pittsburgh Coke & Chemical Company | 1 | 182,500 | ... | ..... | 182,500 |
| Toledo | | | | | |
| Interlake Iron Corporation | 2 | 497,600 | ... | ..... | 497,600 |
| Warren | | | | | |
| Republic Steel Corporation | 1 | 516,000 | ... | ..... | 516,000 |
| Youngstown | | | | | |
| Republic Steel Corporation | 5 | 1,660,000 | ... | ..... | 1,660,000 |
| United States Steel Company | 6 | 1,891,600 | ... | ..... | 1,891,600 |
| Youngstown Sheet and Tube Company | 2 | 501,600 | ... | ..... | 501,600 |
| TOTAL | 48 | 14,507,220 | 2 | 183,000 | 14,690,220 |
| **Pennsylvania** | | | | | |
| Aliquippa | | | | | |
| Jones & Laughlin Steel Corporation | 5 | 1,800,000 | ... | ..... | 1,800,000 |
| Bethlehem | | | | | |
| Bethlehem Steel Company | 7 | 2,160,000 | ... | ..... | 2,160,000 |
| Birdsboro | | | | | |
| Brooke Iron Company, E. & G. | 1 | 151,200 | ... | ..... | 151,200 |
| Braddock | | | | | |
| United States Steel Company | 7 | 2,602,700 | ... | ..... | 2,602,700 |
| Brackenridge | | | | | |
| Allegheny Ludlum Steel Corporation | 1 | 96,000 | ... | ..... | 96,000 |
| Chester | | | | | |
| Chester Blast Furnace, Inc. | 1 | 200,000 | ... | ..... | 200,000 |
| Clairton | | | | | |
| United States Steel Company | 2 | 528,800 | 1 | 85,200 | 614,000 |
| Donora | | | | | |
| American Steel & Wire Company | 2 | 450,000 | ... | ..... | 450,000 |
| Duquesne | | | | | |
| United States Steel Company | 5 | 1,346,200 | 1 | 105,200 | 1,451,400 |
| Erie | | | | | |
| Interlake Iron Corporation | 1 | 167,580 | ... | ..... | 167,580 |
| Etna | | | | | |
| United States Steel Company | ... | ..... | 2 | 145,000 | 145,000 |
| Farrell | | | | | |
| Sharon Steel Corporation | 2 | 561,000 | ... | ..... | 561,000 |
| Johnstown | | | | | |
| Bethlehem Steel Company | 5 | 1,494,000 | 2 | 180,000 | 1,674,000 |
| McKeesport | | | | | |
| National Tube Company | 4 | 1,280,300 | ... | ..... | 1,280,300 |
| Midland | | | | | |
| Crucible Steel Company of America | 2 | 532,000 | ... | ..... | 532,000 |
| Monessen | | | | | |
| Pittsburgh Steel Company | 3 | 954,000 | ... | ..... | 954,000 |
| Neville Island | | | | | |
| Pittsburgh Coke & Chemical Company | 1 | 291,600 | ... | ..... | 291,600 |
| Palmerton | | | | | |
| New Jersey Zinc Company | ... | ..... | 2 | 112,000 | 112,000 |
| Pittsburgh | | | | | |
| Jones & Laughlin Steel Corporation | 6 | 1,872,000 | ... | ..... | 1,872,000 |
| Rankin | | | | | |
| United States Steel Company | 6 | 2,133,000 | ... | ..... | 2,133,000 |
| Sharpsville | | | | | |
| Shenango Furnace Company | 2 | 417,300 | ... | ..... | 417,300 |
| Sheridan | | | | | |
| Lavino and Company, E. J. | ... | ..... | 1 | 51,100 | 51,100 |
| Steelton | | | | | |
| Bethlehem Steel Company | 3 | 792,000 | ... | ..... | 792,000 |
| Swedeland | | | | | |
| Alan Wood Steel Company | 2 | 454,800 | ... | ..... | 454,800 |
| TOTAL | 68 | 20,284,480 | 9 | 678,500 | 20,962,980 |
| **Tennessee** | | | | | |
| Lyles-Wrigley | | | | | |
| Tennessee Products & Chemical Corp. | 1 | 40,320 | ... | ..... | 40,320 |
| Rockwood | | | | | |
| Tennessee Products & Chemical Corp. | 2 | 102,190 | ... | ..... | 102,190 |
| TOTAL | 3 | 142,510 | ... | ..... | 142,510 |
| **Texas** | | | | | |
| Houston | | | | | |
| Sheffield Steel Corporation | 1 | 274,000 | ... | ..... | 274,000 |
| Lone Star | | | | | |
| Lone Star Steel Company | 1 | 366,600 | ... | ..... | 366,600 |
| Rusk | | | | | |
| Valencia Iron & Chemical Corporation | 1 | 27,000 | ... | ..... | 27,000 |
| TOTAL | 3 | 667,600 | ... | ..... | 667,600 |
| **Utah** | | | | | |
| Geneva | | | | | |
| Geneva Steel Company | 3 | 1,200,000 | ... | ..... | 1,200,000 |
| Ironton | | | | | |
| Kaiser & Frazer Parts Corporation | 1 | 300,000 | ... | ..... | 300,000 |
| Geneva Steel Company | 1 | 199,200 | ... | ..... | 199,200 |
| TOTAL | 5 | 1,699,200 | ... | ..... | 1,699,200 |
| **Virginia** | | | | | |
| Lynchburg | | | | | |
| Lavino and Company, E. J. | ... | ..... | 1 | 51,100 | 51,100 |
| **West Virginia** | | | | | |
| Benwood | | | | | |
| Wheeling Steel Corporation | 1 | 234,000 | ... | ..... | 234,000 |
| Weirton | | | | | |
| Weirton Steel Company | 3 | 1,240,000 | ... | ..... | 1,240,000 |
| TOTAL | 4 | 1,474,000 | ... | ..... | 1,474,000 |
| GRAND TOTAL | 236 | 71,455,060 | 14 | 1,098,400 | 72,553,460 |

(a) Furnace included under pig iron.

# Coke

**Rise to an alltime high in blast furnace capacity sets off expansion that pushes coke producing facilities to record levels**

TO SUPPORT the record capacity of the nation's blast furnaces, the country's coke producing capacity has been pushed to a record high level.

On Jan. 1, 1951, coke making capacity in the United States was 66,784,640 net tons, and it was still growing. Increases are shown in beehive capacity as well as for coal chemical recovery ovens.

On Jan. 1, 1951, there were 5540 beehives with total annual capacity of 3,861,750 net tons, and 12,7 coal chemical recovery ovens (sometimes referred as by-product ovens) with a total annual capaci of 62,922,890 tons.

## COKE CAPACITY BY PLANT LOCATION AND OPERATING COMPANY

| | BEEHIVE | | OTHER | | Total annual capacity (N. T.) |
|---|---|---|---|---|---|
| | No. of ovens | Annual capacity (N. T.) | No. of ovens | Annual capacity (N. T.) | |
| **Alabama** | | | | | |
| Birmingham | | | | | |
| Republic Steel Corporation | ..... | ..... | 57 | 250,000 | 250,000 |
| Fairfield | | | | | |
| Tennessee Coal, Iron & Railroad Co. | ..... | ..... | 572 | 2,945,550 | 2,945,550 |
| Gadsden | | | | | |
| Republic Steel Corporation | ..... | ..... | 102 | 565,000 | 565,000 |
| North Birmingham | | | | | |
| Sloss-Sheffield Steel & Iron Company | ..... | ..... | 120 | 678,000 | 678,000 |
| Woodward | | | | | |
| Woodward Iron Company | ..... | ..... | 226 | 830,000 | 830,000 |
| TOTAL | ..... | ..... | 1,077 | 5,268,550 | 5,268,550 |
| **California** | | | | | |
| Fontana | | | | | |
| Kaiser Steel Corporation | ..... | ..... | 135 | 552,000 | 552,000 |
| **Colorado** | | | | | |
| Pueblo | | | | | |
| Colorado Fuel and Iron Corporation | ..... | ..... | 266 | 1,220,000 | 1,220,000 |
| **Illinois** | | | | | |
| Chicago | | | | | |
| Interlake Iron Corporation | ..... | ..... | 120 | 398,600 | 398,600 |
| Granite City | | | | | |
| Granite City Steel Company | ..... | ..... | 49 | 310,000 | 310,000 |
| Joliet | | | | | |
| United States Steel Company | ..... | ..... | 280 | 1,071,520 | 1,071,520 |
| South Chicago | | | | | |
| International Harvester Company | ..... | ..... | 133 | 600,000 | 600,000 |
| Republic Steel Corporation | ..... | ..... | 75 | 460,000 | 460,000 |
| Youngstown Sheet and Tube Co. | ..... | ..... | 70 | 444,000 | 444,000 |
| TOTAL | ..... | ..... | 727 | 3,284,120 | 3,284,120 |
| **Indiana** | | | | | |
| East Chicago | | | | | |
| Youngstown Sheet and Tube Co. | ..... | ..... | 120 | 648,000 | 648,000 |
| Gary | | | | | |
| United States Steel Company | ..... | ..... | 1,148 | 5,855,100 | 5,855,100 |
| Indiana Harbor | | | | | |
| Inland Steel Company | ..... | ..... | 418 | 2,143,400 | 2,143,400 |
| TOTAL | ..... | ..... | 1,686 | 8,646,500 | 8,646,500 |
| **Maryland** | | | | | |
| Sparrows Point | | | | | |
| Bethlehem Steel Company | ..... | ..... | 551 | 2,928,000 | 2,928,000 |
| **Massachusetts** | | | | | |
| Everett | | | | | |
| Eastern Gas and Fuel Associates | ..... | ..... | 204 | 1,112,000 | 1,112,000 |
| **Michigan** | | | | | |
| Dearborn | | | | | |
| Ford Motor Company | ..... | ..... | 183 | 1,314,000 | 1,314,000 |
| River Rouge | | | | | |
| Great Lakes Steel Corporation | ..... | ..... | 146 | 1,120,000 | 1,120,000 |
| TOTAL | ..... | ..... | 329 | 2,434,000 | 2,434,000 |
| **Minnesota** | | | | | |
| Duluth | | | | | |
| American Steel & Wire Company | ..... | ..... | 114 | 483,600 | 483,600 |
| Interlake Iron Corporation | ..... | ..... | 61 | 310,000 | 310,000 |
| TOTAL | ..... | ..... | 175 | 793,600 | 793,600 |
| **New York** | | | | | |
| Buffalo | | | | | |
| Donner-Hanna Coke Corporation | ..... | ..... | 216 | 1,200,000 | 1,200,000 |
| Lackawanna | | | | | |
| Bethlehem Steel Company | ..... | ..... | 383 | 2,022,000 | 2,022,000 |
| TOTAL | ..... | ..... | 599 | 3,222,000 | 3,222,000 |
| **Ohio** | | | | | |
| Campbell | | | | | |
| Youngstown Sheet and Tube Co. | ..... | ..... | 306 | 1,320,000 | 1,320,000 |
| Canton | | | | | |
| Republic Steel Corporation | ..... | ..... | 62 | 240,000 | 240,000 |
| Cleveland | | | | | |
| American Steel & Wire Company | ..... | ..... | 180 | 834,670 | 834,670 |
| Jones & Laughlin Steel Corporation | ..... | ..... | 100 | 360,000 | 360,000 |
| Republic Steel Corporation | ..... | ..... | 279 | 1,345,000 | 1,345,000 |
| Hamilton | | | | | |
| Armco Steel Corporation | ..... | ..... | 110 | 558,000 | 558,000 |

| | BEEHIVE | | OTHER | | Total annual capacity (N. T.) |
|---|---|---|---|---|---|
| | No. of ovens | Annual capacity (N. T.) | No. of ovens | Annual capacity (N. T.) | |
| **Ohio (*Continued*)** | | | | | |
| Lorain | | | | | |
| National Tube Company | ..... | ..... | 385 | 1,766,750 | 1,766,75 |
| Massillon | | | | | |
| Republic Steel Corporation | ..... | ..... | 49 | 215,000 | 215,00 |
| Portsmouth | | | | | |
| Detroit Steel Corporation | ..... | ..... | 108 | 480,000 | 480,00 |
| Toledo | | | | | |
| Interlake Iron Corporation | ..... | ..... | 94 | 372,600 | 372,60 |
| Warren | | | | | |
| Republic Steel Corporation | ..... | ..... | 141 | 870,000 | 870,00 |
| Youngstown | | | | | |
| Republic Steel Corporation | ..... | ..... | 197 | 1,095,000 | 1,095,00 |
| Youngstown Sheet and Tube Co. | ..... | ..... | 84 | 372,000 | 372,00 |
| TOTAL | ..... | ..... | 2,095 | 9,829,020 | 9,829,02 |
| **Pennsylvania** | | | | | |
| Aliquippa | | | | | |
| Jones & Laughlin Steel Corporation | 240 | 252,000 | 293 | 1,800,000 | 2,052,00 |
| Bethlehem | | | | | |
| Bethlehem Steel Company | ..... | ..... | 416 | 1,680,000 | 1,680,00 |
| Brownsville Junction | | | | | |
| Republic Steel Corporation | 296 | 215,000 | ..... | ..... | 215,00 |
| Clairton | | | | | |
| United States Steel Company | ..... | ..... | 1,567 | 7,443,200 | 7,443,20 |
| Erie | | | | | |
| Interlake Iron Corporation | ..... | ..... | 72 | 275,600 | 275,60 |
| Isabella | | | | | |
| Weirton Coal Company | 136 | 120,000 | ..... | ..... | 120,00 |
| Johnstown | | | | | |
| Bethlehem Steel Company | ..... | ..... | 436 | 2,268,000 | 2,268,00 |
| Midland | | | | | |
| Crucible Steel Company of America | ..... | ..... | 184 | 720,000 | 720,00 |
| Monessen | | | | | |
| Pittsburgh Steel Company | 574 | 426,000 | 74 | 500,000 | 926,00 |
| Mount Pleasant | | | | | |
| Carpentertown Coal & Coke Co. | 585 | 375,000 | ..... | ..... | 375,00 |
| Neville Island | | | | | |
| Pittsburgh Coke & Chemical Co. | ..... | ..... | 105 | 685,000 | 685,00 |
| Pittsburgh | | | | | |
| Jones & Laughlin Steel Corporation | ..... | ..... | 360 | 1,440,000 | 1,440,00 |
| Steelton | | | | | |
| Bethlehem Steel Company | ..... | ..... | 130 | 648,000 | 648,00 |
| Swedeland | | | | | |
| Alan Wood Steel Company | ..... | ..... | 151 | 600,000 | 600,00 |
| Various | | | | | |
| United States Steel Company | 2,912 | 2,073,750 | ..... | ..... | 2,073,75 |
| TOTAL | 4,743 | 3,461,750 | 3,788 | 18,059,800 | 21,521,5 |
| **Tennessee** | | | | | |
| Chattanooga | | | | | |
| Tennessee Products & Chemical Corp. | ..... | ..... | 44 | 240,000 | 240,00 |
| **Texas** | | | | | |
| Houston | | | | | |
| Sheffield Steel Corporation | ..... | ..... | 47 | 252,000 | 252,00 |
| Lone Star | | | | | |
| Lone Star Steel Company | | | 78 | 438,000 | 438,00 |
| TOTAL | ..... | ..... | 125 | 690,000 | 690,00 |
| **Utah** | | | | | |
| Dragerton | | | | | |
| Kaiser & Frazer Parts Corporation | 500 | 300,000 | ..... | ..... | 300,0 |
| Geneva | | | | | |
| Geneva Steel Company | ..... | ..... | 252 | 1,012,300 | 1,012,3 |
| Ironton | | | | | |
| Geneva Steel Company | ..... | ..... | 56 | 200,000 | 200,0 |
| Sunnyside | | | | | |
| Kaiser Steel Corporation | 297 | 100,000 | ..... | ..... | 100,0 |
| TOTAL | 797 | 400,000 | 308 | 1,212,300 | 1,612,3 |
| **West Virginia** | | | | | |
| East Steubenville | | | | | |
| Wheeling Steel Corporation | ..... | ..... | 251 | 1,296,000 | 1,296,0 |
| Fairmont | | | | | |
| Sharon Steel Corporation | ..... | ..... | 60 | 225,000 | 225,0 |
| Morgantown | | | | | |
| Sharon Steel Corporation | ..... | ..... | 74 | 400,000 | 400,0 |
| Weirton | | | | | |
| Weirton Steel Company | ..... | ..... | 249 | 1,510,000 | 1,510,0 |
| TOTAL | ..... | ..... | 634 | 3,431,000 | 3,431,0 |
| GRAND TOTAL | 5,540 | 3,861,750 | 12,743 | 62,922,890 | 66,784,6 |

The need for additional coke to support a record
gh in blast furnace capacity caused some of the old
ehives to be pressed back into service. On Jan. 1,
48, there were in use only 3790 beehives, with a
al capacity of 2,806,350 net tons. Capacity on
n. 1, 1950, was 3,185,750 tons. All of the beehive
pacity is in two states: Pennsylvania with 4743
ens totaling 3,461,750 tons, and Utah, with 797
ens totaling 400,000 tons.
Growth in coke capacity had carried the number
coal chemical recovery ovens from 11,982 on
n. 1, 1948, to 12,743 on Jan. 1, 1951, and capacity

TREND IN COKE CAPACITY—(Net Tons)

| f 1 | By-product | Beehive | Total |
|---|---|---|---|
| ..... | 62,922,890 | 3,861,750 | 66,784,640 |
| ..... | 62,283,490 | 3,185,750 | 65,469,240 |
| ..... | 61,572,750 | 3,345,750 | 64,918,500 |
| ..... | 59,699,490 | 2,806,350 | 62,505,840 |
| ..... | 57,774,240 | 2,560,350 | 60,280,590 |
| ..... | 57,614,390 | 2,806,350 | 60,420,740 |
| ..... | 57,409,690 | 3,446,350 | 60,856,040 |
| ..... | 56,574,430 | 3,336,550 | 59,910,980 |
| ..... | 51,707,830 | 5,756,400 | 57,464,230 |
| ..... | 50,291,830 | 4,239,975 | 54,531,805 |

them from 59,699,490 net tons to 62,922,890 tons.
Jan. 1, 1950, capacity was 62,283,490 tons.
nstallation of the new coal chemical recovery ovens
ccurring in ten states. Heaviest concentration of
r capacity was in the Midwest during 1950. In
1, construction of coke ovens is largely in the East,
nough there are installations scheduled for the
st and the South.

## COKE CAPACITY BY COMPANIES

| | BEEHIVE | | OTHER | | Total annual capacity (N. T.) |
|---|---|---|---|---|---|
| | No. of ovens | Annual capacity (N. T.) | No. of ovens | Annual capacity (N. T.) | |
| panies: | | | | | |
| n Wood Steel Company | ..... | ..... | 151 | 600,000 | 600,000 |
| nco Steel Corporation | ..... | ..... | 110 | 558,000 | 558,000 |
| effield Steel Corporation | ..... | ..... | 47 | 252,000 | 252,000 |
| TOTAL | ..... | ..... | 157 | 810,000 | 810,000 |
| hlehem Steel Company | ..... | ..... | 1,916 | 9,546,000 | 9,546,000 |
| orado Fuel and Iron Corporation | ..... | ..... | 266 | 1,220,000 | 1,220,000 |
| cible Steel Company of America | ..... | ..... | 184 | 720,000 | 720,000 |
| roit Steel Corporation | ..... | ..... | 108 | 480,000 | 480,000 |
| mer-Hanna Coke Corporation | ..... | ..... | 216 | 1,200,000 | 1,200,000 |
| tern Gas and Fuel Associates | ..... | ..... | 204 | 1,112,000 | 1,112,000 |
| d Motor Company | ..... | ..... | 183 | 1,314,000 | 1,314,000 |
| nite City Steel Co. | ..... | ..... | 49 | 310,000 | 310,000 |
| nd Steel Company | ..... | ..... | 418 | 2,143,400 | 2,143,400 |
| rlake Iron Corporation | ..... | ..... | 347 | 1,356,800 | 1,356,800 |
| rnational Harvester Company | ..... | ..... | 133 | 600,000 | 600,000 |
| s & Laughlin Steel Corporation | 240 | 252,000 | 753 | 3,600,000 | 3,852,000 |
| ser Steel Corporation | 297 | 100,000 | 135 | 552,000 | 652,000 |
| ser & Frazer Parts Corporation | 500 | 300,000 | ..... | ..... | 300,000 |
| e Star Steel Company | ..... | ..... | 78 | 438,000 | 438,000 |
| ional Steel Corporation: | | | | | |
| eat Lakes Steel Corporation | ..... | ..... | 146 | 1,120,000 | 1,120,000 |
| irton Coal Company | 136 | 120,000 | ..... | ..... | 120,000 |
| irton Steel Company | ..... | ..... | 249 | 1,510,000 | 1,510,000 |
| TOTAL | 136 | 120,000 | 395 | 2,630,000 | 2,750,000 |
| sburgh Coke & Chemical Company | ..... | ..... | 105 | 685,000 | 685,000 |
| sburgh Steel Company | 574 | 426,000 | 74 | 500,000 | 926,000 |
| ublic Steel Corporation | 296 | 215,000 | 962 | 5,040,000 | 5,255,000 |
| on Steel Corporation | ..... | ..... | 134 | 625,000 | 625,000 |
| rgentertown Coal & Coke Co. | 585 | 375,000 | ..... | ..... | 375,000 |
| TOTAL | 585 | 375,000 | 134 | 625,000 | 1,000,000 |
| s-Sheffield Steel & Iron Company | ..... | ..... | 120 | 678,000 | 678,000 |
| nessee Products & Chemical Corp. | ..... | ..... | 44 | 240,000 | 240,000 |
| ed States Steel Corporation: | | | | | |
| erican Steel & Wire Company | ..... | ..... | 294 | 1,318,270 | 1,318,270 |
| neva Steel Company | ..... | ..... | 308 | 1,212,300 | 1,212,300 |
| tional Tube Company | ..... | ..... | 385 | 1,766,750 | 1,766,750 |
| nnessee Coal, Iron & Railroad Co. | ..... | ..... | 572 | 2,945,550 | 2,945,550 |
| ited States Steel Company | 2,912 | 2,073,750 | 2,995 | 14,369,820 | 16,443,570 |
| TOTAL | 2,912 | 2,073,750 | 4,554 | 21,612,690 | 23,686,440 |
| eling Steel Corporation | ..... | ..... | 251 | 1,296,000 | 1,296,000 |
| dward Iron Company | ..... | ..... | 226 | 830,000 | 830,000 |
| ngstown Sheet and Tube Company | ..... | ..... | 580 | 2,784,000 | 2,784,000 |
| GRAND TOTAL | 5,540 | 3,861,750 | 12,743 | 62,922,890 | 66,784,640 |



# Company Names and Addresses

Acme Steel Co.
2840 Archer Ave., Chicago 8, Ill.
Agaloy Tubing Co.
P. O. Box 99, Sheepshead Bay Station, Brooklyn 29, N. Y.
Alan Wood Steel Co.
Conshohocken, Pa.
Algoma Steel Corp. Ltd.
Sault Ste. Marie, Ontario, Can.
Allegheny Ludlum Steel Corp.
Brackenridge, Pa.
Alloy Metal Wire Co.
Prospect Park, Pa.
American Chain & Cable Co. Inc.
929 Connecticut Ave.
Bridgeport 2, Conn.
American Locomotive Co.
30 Church St., New York, N. Y.
American Metal Products Co.
5959 Linsdale Ave.
Detroit 4, Mich.
American Pipe & Steel Corp.
2201 W. Commonwealth Ave.
Alhambra, Calif.
American Shim Steel Co.
Second Ave. & Sixth St.
New Kensington, Pa.
American Steel & Wire Co.
Rockefeller Bldg.
Cleveland, 13, O.
American Swedo Iron Corp.
400 Railroad St., Danville, Pa.
Ames & Co., W.
417 Communipaw Ave.
Jersey City 4, N. J.
Anchor Drawn Steel Co.
Latrobe, Pa.
Angell Nail & Chaplet Co.
4580 E. 71st St., Cleveland 5, O.
Armco Steel Corp., Middletown, O.
Atlantic Industries Ltd.
Amherst, Nova Scotia
Atlantic Steel Co.
P. O. Box 1714, Atlanta 1, Ga.
Atlantic Wire Co.
1 Church St., Branford, Conn.
Atlas Steels Ltd.
Welland, Ontario, Canada
Babcock & Wilcox Tube Co.
Beaver Falls, Pa.
Baldwin-Lima-Hamilton Corp.
Burnham, Mifflin County, Pa.
Basalt Rock Co.
Napa, Calif.
Bethlehem Steel Co., Bethlehem, Pa.
Bethlehem Pacific Coast Steel Corp.
San Francisco 19, Calif.
Blair Strip Steel Co.
1209 Butler Ave., New Castle, Pa.
Bliss & Laughlin Inc., Harvey, Ill.
Boiardi Steel Corp., Milton, Pa.
Borg-Warner Corp.
310 South Michigan Ave.
Chicago 4, Ill.
Braeburn Alloy Steel Corp.
Braeburn, Pa.
Brainard Steel Co., Warren, O.
Brooke Iron Co. (E. & G.)
Birdsboro, Pa.
Buffalo Bolt Co.
101 East Ave.
North Tonawanda, N. Y.
Buffalo Steel Co.
Tonawanda, N. Y.
Bundy Tubing Co.
8109 E. Jefferson Ave.
Detroit 14, Mich.
Burlington Steel Co. Ltd.
Sherman Ave., North Hamilton, Ontario, Canada
Byers Company, A. M.
Clark Bldg., Pittsburgh 22, Pa.
California Cold Rolled Steel Corp.
7140 Anaheim-Telegraph Road
Los Angeles 22, Calif.
California Wire Cloth Corp.
1001 22nd Ave., Oakland, Calif.
Canadian Car & Foundry Co. Ltd.
621 Craig St., West Montreal, Quebec, Canada
Canadian Furnace Co. Ltd.
Port Colborne, Ontario, Canada
Canadian Tube & Steel Products Ltd., 5765 Hamilton St.
Montreal, P. Q., Canada
Carpenter Steel Co.
101 West Bern St., Reading, Pa.
Carpentertown Coal & Coke Co.
Mount Pleasant, Pa.
Case Company, J. I., Racine, Wis.
Cedarburg Wire, Wire Nail & Screw Co., Cedarburg, Wis.
Central Iron & Steel Co.
Harrisburg, Pa.
Central Steel Tube Co.
Box 190, Clinton, Iowa
Chester Blast Furnace Inc.
Chester, Pa.
Chicago Steel & Wire Co.
10257 Torrence Ave.
Chicago 17, Ill.
Claymont Steel Corp.
Claymont, Del.
Cleveland Cold Rolling Mills Co.
Stroud Road, R.F.D.-1, Berea, O.
Cold Metal Products Co.
2131 Wilson Ave.
Youngstown 1, O.
Colonial Steel Co.
2400 Grant Bldg.
Pittsburgh 19, Pa.
Colorado Fuel & Iron Corp.
Continental Oil Bldg.
Denver 2, Colo.
Columbia Steel Co.
Russ Bldg., San Francisco 6, Calif.
Columbia Steel & Shafting Co.
P. O. Box 1557, Pittsburgh 30, Pa.
Columbia Tool Steel Co.
Lincoln Highway & State St.
Chicago Heights, Ill.
Compressed Steel Shafting Co.
1587 Hyde Park Ave.
Readville, Mass.
Connors Steel Co.
Birmingham 1, Ala.
Consolidated Western Steel Corp.
Russ Bldg., San Francisco 6, Calif.
Continental Steel Corp.
Kokomo, Ind.
Copperweld Steel Co., Glassport, Pa.
Crown Cork & Seal Co. Inc.
1200 S. Newkirk St., Baltimore
Crucible Steel Co. of America
405 Lexington Ave.
New York 17, N. Y.
Cumberland Steel Co.
Cumberland, Md.
Cuyahoga Steel & Wire Co.
Longwood Ave., Maple Heights
Cleveland 5, O.
Davis Wire & Cable Corp., K. H.
2417 E. 23rd St.
Los Angeles 11, Calif.
Detroit Steel Corp.
P. O. Box D, Porter Sta.
Detroit 9, Mich.
Detroit Tube & Steel Co.
Box A—Grand River Station
Detroit 8, Mich.
Disston & Sons Inc., Henry
126 Tacony
Philadelphia 35, Pa.
Dominion Foundries & Steel Ltd.
Hamilton, Ontario, Canada
Dominion Steel & Coal Corp. Ltd.
Sydney, N. S., Canada
Donner-Hanna Coke Corp.
Abby & Mystic Sts.
Buffalo 20, N. Y.
Driscoll Wire Co., Shelton, Conn.
Driver Co., Wilbur B.
150 Riverside Ave.
Newark 4, N. J.
Eastern Gas & Fuel Associates
250 Stuart St., Boston 16, Mass.
Eastern Stainless Steel Corp.
P. O. Box 1975, Baltimore 3, Md.
Edgewater Steel Co.
P. O. Box 478 Pittsburgh 30, Pa.
Elco Steel Products Co.
Newcastle, Pa.
Electroweld Steel Corp.
505 W. Foothill Rd.
Azusa, Calif.
Elliott Brothers Steel Co.
New Castle, Pa.
Empire Steel Co., Mansfield, O.
Erie Forge Co., Erie, Pa.
Falls Hollow Staybolt Co.
7 Portage Trail
Cuyahoga Falls, O.
Firth-Sterling Steel & Carbide Corp.
2201-3299 Demler Road
McKeesport, Pa.
Fitzsimons Steel Co.
1623 Wilson Ave.
Youngstown 8, O.
Follansbee Steel Corp.
Third and Liberty Aves.
Pittsburgh, Pa.
Ford Motor Co.
3000 Schaefer Road
Dearborn, Mich.
Formed Tubes Inc.
Sturgis, Mich.
Fort Howard Steel & Wire
State & Ninth Sts.
Green Bay, Wis.
Fretz-Moon Tube Co. Inc.
Butler, Pa.
Geneva Steel Co., Geneva, Utah
Globe Iron Co., Jackson, O.
Globe Steel Tubes Co.
3839 W. Burnham St.
Milwaukee 4, Wis.
Granite City Steel Co.
20th and Madison Ave.
Granite City, Ill.
Great Lakes Steel Corp.
Tecumseh Rd., Ecorse
Detroit 18, Mich.

## COMPANY NAMES AND ADDRESSES (continued)

Greer Steel Co., Dover, O.
Griffin Manufacturing Co.
Cherry and Huron Sts., Erie, Pa.
Hanna Furnace Corp.
Ecorse, Detroit 18, Mich.
Harrisburg Steel Corp.
Harrisburg, Pa.
Heller Brothers Co.
865 Mt. Prospect Ave.
Newark 4, N. J.
Heppenstall Co.
4620 Hatfield St.
Pittsburgh 1, Pa.
Highland Iron & Steel Inc.
Terre Haute, Ind.
Hind Steel Company Inc.
2146 Stanley Terrace
Union, N. J.
Hofmann Industries Inc.
Sinking Spring, Pa.
Igoe Brothers Inc.
Avenue A & Poinier St.
Newark 5, N. J.
Industrial Forge & Steel Inc.
Canton, O.
Inland Steel Co.
38 S. Dearborn St.
Chicago 3, Ill.
Interlake Iron Corp.
1900 Union Commerce Bldg.
Cleveland 14, O.
International Harvester Co.
180 N. Michigan Ave.
Chicago 1, Ill.
Isaacson Iron Works
P. O. Box 3028
Seattle 14, Wash.
Ivins Steel Tube Works, Ellwood
Oak Lane Station
Philadelphia, Pa.
Jackson Iron & Steel Co.
Jackson, O.
Jersey Shore Steel Co.
Jersey Shore, Pa.
Jessop Steel Co., Washington, Pa.
Johnson Steel & Wire Co.
53 Wiser Ave.
Worcester 1, Mass.
Jones & Laughlin Steel Corp.
Third Ave. & Ross St.
Pittsburgh 30, Pa.
Joslyn Mfg. & Supply Co.
20 North Wacker Drive
Chicago 2, Ill.
Judson Steel Corp.
4200 Eastshore Highway
Emeryville, Calif.
Kaiser Steel Corp.
1924 Broadway
Oakland, Calif.
Kaiser & Frazer Parts Corp.
Provo, Utah
Kane Boiler Works Inc., E.
2722 Mechanic St.
Galveston, Texas
Keystone Drawn Steel Co.
Spring City, Pa.
Keystone Steel & Wire Co.
Peoria, Ill.
Kidd Drawn Steel Co.
Aliquippa, Pa.
Kilby Steel Co., Anniston, Ala.
Knoxville Iron Co.
Knoxville 2, Tenn.
Laclede Steel Co.
1317 Arcade Bldg.
St. Louis 1, Mo.
La Salle Steel Co.
919 N. Michigan Ave.
Chicago 80, Ill.
Latrobe Electric Steel Co.
2626 Ligonier St., Latrobe, Pa.
Lavino & Co., E. J.
1528 Walnut St.
Philadelphia 2, Pa.
Lockhart Iron & Steel Co.
P. O. Box 1165
Pittsburgh, Pa.
Lone Star Steel Co., Dallas, Texas
Lukens Steel Co., Coatesville, Pa.
McLouth Steel Corp.
300 S. Livernois, Detroit 17, Mich.
Macwhyte Co.
2900—14th Ave., Kenosha, Wis.
Madison Wire Company Inc.
Indian Church Road
Buffalo, N. Y.
Mahoning Valley Steel Co.
McKees Lane, Niles, O.
Manitoba Rolling Mill Co. Ltd.
875 Logan Ave.
Winnipeg, Manitoba, Canada
Mark & Co., Clayton
1900 Dempster St., Evanston, Ill.
Master Tank & Welding Ltd.
1612 Singleton St.
P. O. Box 5072
Dallas 8, Texas
Medart Co.
100 Potomac St., St. Louis 18, Mo.
Mercer Tube & Mfg. Co.
200 Cark St., Sharon, Pa.
Mesta Machine Co.
P. O. Box 1466, Pittsburgh 30, Pa.
Michigan Seamless Tube Co.
South Lyon, Mich.
Mid-States Steel & Wire Co.
Crawfordsville, Ind.
Midvale Co.
Nicetown, Philadelphia 40, Pa.
Missouri Rolling Mill Corp.
6800 Manchester Ave.
St. Louis 10, Mo.
Moltrup Steel Products Co.
Beaver Falls, Pa.
Monarch Steel Co. Inc.
McCarty & Sand St.
Indianapolis, Ind.
National Forge & Ordnance Co.
Irvine, Warren Co., Pa.
National-Standard Co.
Niles, Mich.
National Steel Corp.
2800 Grant Bldg.
Pittsburgh 19, Pa.
National Supply Co.
1400 Grant Bldg.
Pittsburgh 30, Pa.
National Tube Co.
Frick Bldg., Pittsburgh 30, Pa.
Naylor Pipe Co.
1230 E. 92nd St.
Chicago 19, Ill.
Nelsen Steel & Wire Co.
9400 Belmont Ave.
Franklin Park, Ill.
New England High Carbon Wire Co.
50 Howe Ave.
Millbury, Mass.
New Jersey Zinc Co.
160 Front St., New York 7, N. Y.
Newman-Crosby Steel Corp.
Pawtucket, R. I.
Newport News Shipbuilding & Dry
Dock Co., Newport News, Va.
Newport Steel Corp.
Newport, Ky.
Nichols Wire & Aluminum Co.
Davenport, Iowa
Nikoh Tube Co.
5001 S. Kedzie Ave.
Chicago 32, Ill.
Niles Rolling Mill Co., Niles, O.
Northern Steel Inc.
44 School St., Boston, Mass.
Northwest Steel Rolling Mills Inc.
4315 Ninth Ave., N. W.
Seattle 7, Wash.
Northwestern Steel & Wire Co.
Sterling, Ill.
Ohio River Steel Corp.
Toronto, O.
Ohio Seamless Tube Co.
132-140 West Main St.
Shelby, O.
Oregon Steel Mills
5250 N. W. Front Ave.
Portland 10, Ore.
Pacific States Steel Corp.
Niles, Calif.
Pacific Tube Co.
5710 Smithway St.
Los Angeles 22, Calif.
Parkersburg Steel Co.
Parkersburg, W. Va.
Phoenix Iron & Steel Co.
121 Bridge St.
Phoenixville, Pa.
Phoenix Manufacturing Co.
Industry Ave., Joliet, Ill.
Pilgrim Drawn Steel Corp.
2208 Fisher Bldg., Detroit 2, Mich.
Pittsburgh Coke & Chemical Co.
1905 Grant Bldg.
Pittsburgh 19, Pa.
Pittsburgh Steel Co.
1600 Grant Bldg.
Pittsburgh 19, Pa.
Pittsburgh Tool Steel Wire Co.
Monaca, Pa.
Pittsburgh Tube Co.
323 Fourth Ave.
Pittsburgh 22, Pa.
Pollak Steel Co.
820 Temple Bar Bldg.
Cincinnati 2, O.
Poor & Co.
50 Church St., New York 17, N. Y.
Precision Drawn Steel Co.
3600 River Road, Camden, N. J.
Prentiss & Company, Geo. W.
439 Dwight St.
Holyoke, Mass.
Reconstruction Finance Corp.
400 Transit Tower
San Antonio 5, Texas
Reeves Steel & Manufacturing Co.
Dover, O.
Republic Steel Corp.
Republic Bldg., Cleveland 1, O.
Rhode Island Steel Corp.
Pawtucket, R. I.
Roebling's Sons Co., John A.
640 South Broad St.
Trenton 2, N. J.
Rome Strip Steel Co. Inc.
530 Henry St., Rome, N. Y.
Rotary Electric Steel Co.
8 Mile and Mound Roads
Detroit 20, Mich.
Seneca Wire & Mfg. Co.
Fostoria, O.
Service Steel Co.
1435 Franklin St.
Detroit 7, Mich.
Sharon Steel Corp., Sharon, Pa.
Sharon Tube Co.
249 N. Water Ave.
Sharon, Pa.
Sheet Steel Mills Inc.
Indianapolis, Ind.
Sheffield Steel Corp.
Sheffield Station
Kansas City, Mo.
Shenango Furnace Co.
812 Oliver Bldg.
Pittsburgh 22, Pa.
Shenango Tube Co.
200 Clarke St., Sharon, Pa.
Sherman Steel & Wire Co.
Sherman, Tex.
Sierra-Drawn Steel Co.
5821 E. Randolph St.
Los Angeles 22, Calif.
Simmons Co.
230 Park Ave.
New York 17, N. Y.
Simonds Saw & Steel Co.
470 Main St., Fitchburg, Mass.
Sloss-Sheffield Steel & Iron Co.
Birmingham, Ala.
Smith Corporation, A. O.
3533 N. 27th St.
Milwaukee 1, Wis.
Smith Corp. of Texas, A. O.
P. O. Box 9668
Houston, Tex.
South Chester Tube Co.
Front & Thurlow Sts.
Chester, Pa.
Southeastern Metals Co. Inc.
Box 1145, Decatur, Ala.
Southern Pipe & Casing Co.
P. O. Box C, Azusa, Calif.
Southwest Steel Rolling Mills
9901 S. Alameda St.
Los Angeles, Calif.
Spencer Wire Corp.
68 Pleasant St.
W. Brookfield, Mass.
Standard Tube Co.
14534 Woodward Ave.
Detroit, Mich.
Stanley Works, New Britain, Conn.
Steel Co. of Canada Ltd.
Hamilton, Ontario, Canada
Superior Drawn Steel Co.
Monaca, Pa.
Superior Sheet Steel Div.,
Parksburg Steel Co., Canton, O.
Superior Steel Corp.
Grant Bldg., Pittsburgh 19, Pa.
Superior Tube Co.
P. O. Drawer 191
Norristown, Pa.
Sweet's Steel Co., Williamsport, Pa.
Taylor Forge & Pipe Works
4735 W. 14th St., Cicero, Ill.
Tennessee Coal, Iron & Railroad
Co., Brown-Marx Bldg.
Birmingham 2, Ala.
Tennessee Products & Chemical
Corp., 412 American National
Bank Bldg., Nashville 3, Tenn.
Texas Steel Co.
3901 Hemphill St.
Fort Worth, Texas
Thomas Steel Co., Warren, O.
Thompson Wire Co.
41 Mildred Ave.
Mattapan, Mass.
Timken Roller Bearing Co.
1835 Dueber Ave., S. W.
Canton 6, O.
Toledo Steel Tube Co.
2115 Smead Ave., Toledo 6, O.
Tonawanda Iron Div.
American Radiator & Standard
Sanitary Corp., Buffalo, N. Y.
Tredegar Co., Richmond, Va.
Trent Tube Co.
East Troy, Wis.
Tube Reducing Corp.
520 Main Ave.
Wallington, N. J.
Union Electric Steel Corp.
2314 Oliver Bldg.
Pittsburgh 22, Pa.
Union Wire Rope Corp.
21st & Manchester Ave.
Kansas City 3, Mo.
United States Steel Corp.
71 Broadway, New York 6, N. Y.
U. S. Steel Co.
Carnegie Bldg., Pittsburgh, Pa.
Universal-Cyclops Steel Corp.
Bridgeville, Pa.
Vacuum Melt Inc.
Greenville, Pa.
Valencia Iron & Chemical Corp.
Rusk, Texas
Vanadium-Alloys Steel Co.
Latrobe, Pa.
Vancouver Rolling Mills Ltd.
490 SE Marine
Vancouver, Canada
Vulcan Crucible Steel Co.
West Aliquippa, Pa.
Wallace Barnes Co., Bristol, Conn.
Wallingford Steel Co.
Wallingford, Conn.
Washburn Wire Co.
Phillipsdale 16, R. I.
Washington Steel Corp.
9 E. Beau St., Washington, Pa.
Webb Wire Works
17 Liberty St.
New Brunswick, N. J.
Weirton Coal Co., Weirton, W. Va.
Weirton Steel Co., Weirton, W. Va.
West Virginia Steel & Mfg. Co.
Foot of 17th St.
Huntington, W. Va.
Western Automatic Machine Screw
Co., Elyria, O.
Wheatland Tube Co.
Real Estate Trust Bldg.
Philadelphia 7, Pa.
Wheeling Steel Corp.
Wheeling, W. Va.
Whitney Apollo Corp., Apollo, Pa.
Wickwire Brothers Inc.
Cortland, N. Y.
Wilson Steel & Wire Co.
4840 So. Western Ave.
Chicago 9, Ill.
Woodward Iron Co.
Woodward, Ala.
Worcester Pressed Steel Co.
100 Barber Ave.
Worcester 6, Mass.
Wright Steel & Wire Co., G. F.
243 Stafford St.
Worcester 3, Mass.
Wyckoff Steel Co.
First National Bank Bldg.
Pittsburgh 30, Pa.
Youngstown Sheel & Tube Co.
Stambaugh Bldg.
Youngstown 1, O.

Ste

United States capa
ty to produce steel
ingots and casting
not only at an allti
high but it is head
still higher

# ngots

R THE FIRST TIME the American Iron & Steel stitute's directory shows the country's steelmaking pacity at more than 100 million tons. In rising record levels, the nation's capacity to make steel ingots and castings reached 104,502,680 net tons Jan. 1, 1951. More capacity is under construction, d by the end of 1952 the world's largest steel instry will have at least 118 million tons of steel-king capacity.

The Jan. 1, 1951, record capacity consisted of 91,-0,850 net tons of open-hearth, 5,621,000 net tons of ssemer, 7,570,810 net tons of electric and 20 net s of crucible. Included in the open-hearth figure

**TEN LARGEST CAPACITIES: STEEL FOR INGOTS AND CASTINGS (Net Tons)**

| | Jan. 1, 1951 | Jan. 1, 1948 | Jan. 1, 1945 |
|---|---|---|---|
| United States Steel Corp. | 33,868,700 | 31,226,200 | 32,307,000 |
| Bethlehem Steel Corp. | 16,000,000 | 13,800,000 | 12,900,000 |
| Republic Steel Corp. | 8,967,000 | 8,600,000 | 9,791,000 |
| Jones & Laughlin Steel Corp. | 4,846,500 | 4,741,500 | 5,042,400 |
| National Steel Corp. | 4,750,000 | 4,050,000 | 3,900,000 |
| Armco Steel Corp. | 4,330,000 | 3,367,000 | 3,268,000 |
| Youngstown Sheet & Tube Co. | 4,250,000 | 4,002,000 | 4,002,000 |
| Inland Steel Co. | 3,750,000 | 3,400,000 | 3,400,000 |
| Colorado Fuel & Iron Corp. | 2,028,000 | 1,452,000 | 1,272,000 |
| Wheeling Steel Corp. | 1,860,000 | 1,409,000 | 1,960,000 |

**TREND IN STEEL INGOT CAPACITY—(Net Tons)**

| As of Jan. 1 | Open Hearth | Bessemer | Crucible | Electric | Total |
|---|---|---|---|---|---|
| 1951 | 91,310,850 | 5,621,000 | 20 | 7,570,810 | 104,502,680 |
| 1950 | 86,984,490 | 5,537,000 | 20 | 6,871,290 | 99,392,800 |
| 1949 | 84,817,040 | 5,191,000 | 20 | 6,112,870 | 96,120,930 |
| 1948 | 83,610,690 | 5,226,000 | 20 | 5,396,750 | 94,233,460 |
| 1947 | 81,010,990 | 5,154,000 | 20 | 5,076,240 | 91,241,250 |
| 1946 | 81,236,250 | 5,154,000 | 20 | 5,500,290 | 91,890,560 |
| 1945 | 84,171,590 | 5,874,000 | 3,800 | 5,455,890 | 95,505,280 |
| 1944 | 82,223,610 | 6,074,000 | 3,800 | 5,350,880 | 93,652,290 |
| 1943 | 79,180,880 | 6,553,000 | 3,800 | 4,554,980 | 90,292,660 |
| 1942 | 78,107,260 | 6,721,400 | 3,800 | 3,737,510 | 88,569,970 |
| 1941 | 74,565,510 | 6,996,520 | 3,942 | 2,586,320 | 84,152,292 |
| 1940 | 73,721,592 | 6,009,920 | 5,354 | 1,882,630 | 81,619,496 |
| 1939 | 72,959,638 | 7,138,880 | 5,354 | 1,725,086 | 81,828,958 |
| 1938 | 71,472,370 | 7,212,800 | 9,610 | 1,490,858 | 80,185,638 |
| 1937 | 69,725,736 | 7,084,000 | 11,850 | 1,326,788 | 78,148,374 |
| 1936 | 68,946,829 | 8,058,400 | 11,850 | 1,147,221 | 78,164,300 |
| 1935 | 68,544,310 | 8,842,400 | 11,850 | 1,053,370 | 78,451,930 |

## STEEL INGOT CAPACITY BY TYPE AND COMPANY

| | OPEN HEARTH | | BESSEMER | | ELECTRIC AND CRUCIBLE | | Total annual capacity (N. T.) |
|---|---|---|---|---|---|---|---|
| | No. | Annual capacity (N. T.) | No. | Annual capacity (N. T.) | No. | Annual capacity (N. T.) | |
| ds: | | | | | | | |
| pen hearth—basic | 910 | 90,364,780 | .... | ..... | .... | ..... | 90,364,780 |
| pen hearth—acid | 37 | 946,070 | .... | ..... | .... | ..... | 946,070 |
| ssemer | .... | ..... | (e) 41 | 5,621,000 | .... | ..... | 5,621,000 |
| ectric | .... | ..... | .... | ..... | 256 | 7,570,810 | 7,570,810 |
| ucible | .... | ..... | .... | ..... | 1 | 20 | 20 |
| TOTAL | 947 | 91,310,850 | (e) 41 | 5,621,000 | 257 | 7,570,830 | 104,502,680 |
| el for castings cluded above | .... | 230,080 | .... | ..... | .... | 124,790 | 354,870 |
| panies: | | | | | | | |
| m Wood Steel Co. | 7 | 550,000 | .... | ..... | .... | ..... | 550,000 |
| egheny Ludlum Steel rporation | 7 | 260,160 | .... | ..... | 28 | 572,200 | 832,360 |
| erican Locomotive Co. | 6 | 181,000 | .... | ..... | .... | ..... | 181,000 |
| noo Steel Corporation | 25 | 2,620,000 | .... | ..... | 9 | 396,000 | 3,016,000 |
| heffield Steel Corp. | 14 | 1,314,000 | .... | ..... | .... | ..... | 1,314,000 |
| TOTAL | 39 | 3,934,000 | .... | ..... | 9 | 396,000 | 4,330,000 |
| antic Steel Company | 3 | 188,000 | .... | ..... | .... | ..... | 188,000 |
| bcock & Wilcox Tube mpany | .... | ..... | .... | ..... | 2 | 64,800 | 64,800 |
| dwin-Lima-Hamilton rp. | 5 | 149,280 | .... | ..... | (a) 1 | 20 | 149,300 |
| rium Steel Corporation: | | | | | | | |
| ntral Iron & Steel Co. | 5 | 360,000 | .... | ..... | 1 | 46,000 | 406,000 |
| dustrial Forge & Steel, nc. | 2 | 48,600 | .... | ..... | .... | ..... | 48,600 |
| oenix Iron & Steel Co. | 6 | 431,430 | .... | ..... | .... | ..... | 431,430 |
| TOTAL | 13 | 840,030 | .... | ..... | 1 | 46,000 | 886,030 |
| hlehem Steel Corp: | | | | | | | |
| thlehem Steel Co. | 122 | 14,486,000 | 6 | 576,000 | 8 | 158,000 | 15,220,000 |
| thlehem Pacific Coast Steel Corp. | 13 | 540,000 | .... | ..... | 2 | 240,000 | 780,000 |
| TOTAL | 135 | 15,026,000 | 6 | 576,000 | 10 | 398,000 | 16,000,000 |
| g-Warner Corporation | .... | ..... | .... | ..... | 3 | 28,350 | 28,350 |
| ardi Steel Corp. | .... | ..... | .... | ..... | 2 | 50,760 | 50,760 |
| eburn Alloy Steel Corp. | .... | ..... | .... | ..... | 2 | 20,730 | 20,730 |
| rs Company, A. M. | .... | ..... | .... | ..... | 2 | 75,000 | 75,000 |
| penter Steel Company | .... | ..... | .... | ..... | 7 | 81,360 | 81,360 |
| orado Fuel & Iron rp. | 20 | 1,560,000 | .... | ..... | .... | ..... | 1,560,000 |
| aymont Steel Corp. | 7 | 468,000 | .... | ..... | .... | ..... | 468,000 |
| TOTAL | 27 | 2,028,000 | .... | ..... | .... | ..... | 2,028,000 |
| imbia Tool Steel Co. | .... | ..... | .... | ..... | 2 | 6,600 | 6,600 |
| nors Steel Co. | .... | ..... | .... | ..... | 2 | 60,000 | 60,000 |
| tinental Steel Corp. | 5 | 393,760 | .... | ..... | .... | ..... | 393,760 |
| perweld Steel Co. | .... | ..... | .... | ..... | 7 | 554,400 | 554,400 |
| ible Steel Company America | 11 | 867,000 | .... | ..... | 24 | 286,440 | 1,153,440 |
| oit Steel Corp. | 10 | 650,000 | .... | ..... | .... | ..... | 650,000 |
| ton & Sons, Inc., nry. | .... | ..... | .... | ..... | 2 | 25,000 | 25,000 |
| ern Stainless Steel rp. | .... | ..... | .... | ..... | 4 | 12,000 | 12,000 |
| ewater Steel Co. | 3 | 146,470 | .... | ..... | .... | ..... | 146,470 |
| ire Steel Company | 6 | 390,320 | .... | ..... | .... | ..... | 390,320 |
| Forge Company | 3 | 85,000 | .... | ..... | .... | ..... | 85,000 |
| n Sterling Steel and bide Corp. | .... | ..... | .... | ..... | 3 | 20,040 | 20,040 |
| Motor Company | 10 | 1,246,580 | .... | ..... | 17 | 225,360 | 1,471,940 |
| ite City Steel Co. | 13 | 720,000 | .... | ..... | .... | ..... | 720,000 |
| isburg Steel Corp. | 3 | 100,750 | .... | ..... | .... | ..... | 100,750 |
| penstall Company | 2 | 39,880 | .... | ..... | 1 | 3,000 | 42,880 |
| d Steel Company | 36 | 3,750,000 | .... | ..... | .... | ..... | 3,750,000 |
| national Harvester npany | 11 | 900,000 | .... | ..... | .... | ..... | 900,000 |
| son Iron Works | .... | ..... | .... | ..... | 2 | 101,520 | 101,520 |
| p Steel Company | .... | ..... | .... | ..... | 4 | 41,560 | 41,560 |
| Jones & Laughlin Steel Corporation | 30 | 3,927,000 | 6 | 918,000 | 1 | 1,500 | 4,846,500 |
| Joslyn Mfg. & Supply Co. | .... | ..... | .... | ..... | 3 | 37,500 | 37,500 |
| Judson Steel Corporation | 3 | 76,500 | .... | ..... | .... | ..... | 76,500 |
| Kaiser Steel Corp. | 7 | 1,200,000 | .... | ..... | .... | ..... | 1,200,000 |
| Keystone Steel & Wire Co. | 3 | 325,000 | .... | ..... | .... | ..... | 325,000 |
| Kilby Steel Company | .... | ..... | .... | ..... | 3 | 34,020 | 34,020 |
| Knoxville Iron Company | .... | ..... | .... | ..... | 2 | 38,000 | 38,000 |
| Laclede Steel Company | 4 | 397,840 | .... | ..... | .... | ..... | 397,840 |
| Latrobe Electric Steel Co. | .... | ..... | .... | ..... | 4 | 12,000 | 12,000 |
| Lukens Steel Company | 12 | 675,000 | .... | ..... | .... | ..... | 675,000 |
| McLouth Steel Corporation | .... | ..... | .... | ..... | 4 | 420,000 | 420,000 |
| Mesta Machine Company | 4 | 85,000 | .... | ..... | 1 | 20,000 | 105,000 |
| Midvale Company | 6 | 324,430 | .... | ..... | 9 | 92,940 | 417,370 |
| National Forge & Ordnance Company | .... | ..... | .... | ..... | 3 | 25,000 | 25,000 |
| National Steel Corp.: | | | | | | | |
| Great Lakes Steel Corp. | 17 | 2,450,000 | (c) 2 | ..... | .... | ..... | 2,450,000 |
| Weirton Steel Co. | 12 | 2,300,000 | (c) 2 | ..... | .... | ..... | 2,300,000 |
| TOTAL | 29 | 4,750,000 | (c) 4 | ..... | .... | ..... | 4,750,000 |
| National Supply Co. | .... | ..... | .... | ..... | 3 | 50,400 | 50,400 |
| (b) Newport News Shipbuilding & Dry Dock Co. | .... | ..... | .... | ..... | 3 | 12,000 | 12,000 |
| Newport Steel Corp. | 7 | 413,100 | .... | ..... | 3 | 291,600 | 704,700 |
| Northwest Steel Rolling Mills, Inc. | .... | ..... | .... | ..... | 1 | 32,400 | 32,400 |
| Northwestern Steel & Wire Co. | .... | ..... | .... | ..... | 3 | 321,000 | 321,000 |
| Ohio River Steel Corp. | 4 | 121,200 | .... | ..... | .... | ..... | 121,200 |
| Oregon Steel Mills | .... | ..... | .... | ..... | 3 | 110,000 | 110,000 |
| Pacific States Steel Corp. | 2 | 140,000 | .... | ..... | 2 | 91,300 | 231,300 |
| Pittsburgh Steel Co. | 12 | 1,072,000 | .... | ..... | .... | ..... | 1,072,000 |
| Reconstruction Finance Corp. | .... | ..... | .... | ..... | 5 | 360,000 | 360,000 |
| Republic Steel Corp. | 74 | 7,202,000 | 2 | 665,000 | 21 | 1,100,000 | 8,967,000 |
| Roeblings Sons Co., J. A. | 9 | 204,870 | .... | ..... | .... | ..... | 204,870 |
| Rotary Electric Steel Co. | .... | ..... | .... | ..... | 5 | 425,000 | 425,000 |
| Sharon Steel Corp. | 19 | 1,381,400 | .... | ..... | 2 | 60,000 | 1,441,400 |
| Simonds Saw & Steel Co. | .... | ..... | .... | ..... | 3 | 21,600 | 21,600 |
| (b) Southwest Steel Rolling Mills | .... | ..... | .... | ..... | 1 | 36,000 | 36,000 |
| Stanley Works | 3 | 188,280 | .... | ..... | .... | ..... | 188,280 |
| Texas Steel Company | .... | ..... | .... | ..... | 2 | 22,320 | 22,320 |
| Timken Roller Bearing Company | 3 | 201,600 | .... | ..... | 6 | 345,600 | 547,200 |
| Union Electric Steel Corp. | .... | ..... | .... | ..... | 2 | 26,760 | 26,760 |
| United States Steel Corp.: | | | | | | | |
| American Steel & Wire Company | 26 | 2,068,000 | .... | ..... | .... | ..... | 2,068,000 |
| Columbia Steel Co. | 11 | 566,400 | .... | ..... | 1 | 12,000 | 578,400 |
| Geneva Steel Co. | 9 | 1,440,000 | .... | ..... | .... | ..... | 1,440,000 |
| National Tube Co. | 15 | 2,226,000 | 6 | 1,188,000 | .... | ..... | 3,414,000 |
| Tennessee Coal, Iron & Railroad Company | 21 | 2,920,000 | (c) 3 | ..... | .... | ..... | 2,920,000 |
| United States Steel Co. | 231 | 21,746,000 | (d) 8 | 1,284,000 | 13 | 418,300 | 23,448,300 |
| TOTAL | 313 | 30,966,400 | 17 | 2,472,000 | 14 | 430,300 | 33,868,700 |
| Universal-Cyclops Steel Corporation | .... | ..... | .... | ..... | 4 | 54,120 | 54,120 |
| Vacuum Melt, Inc. | .... | ..... | .... | ..... | 3 | 1,800 | 1,800 |
| Vanadium-Alloys Steel Co. | .... | ..... | .... | ..... | 3 | 11,910 | 11,910 |
| Colonial Steel Co. | .... | ..... | .... | ..... | 1 | 7,020 | 7,020 |
| TOTAL | .... | ..... | .... | ..... | 4 | 18,930 | 18,930 |
| Vulcan Crucible Steel Co. | .... | ..... | .... | ..... | 2 | 9,600 | 9,600 |
| Washburn Wire Co. | 4 | 93,000 | .... | ..... | .... | ..... | 93,000 |
| Wheeling Steel Corp. | 11 | 1,440,000 | 2 | 420,000 | .... | ..... | 1,860,000 |
| Youngstown Sheet and Tube Company | 33 | 3,680,000 | 4 | 570,000 | .... | ..... | 4,250,000 |
| GRAND TOTAL | 947 | 91,310,850 | (e) 41 | 5,621,000 | (f)257 | 7,570,830 | 104,502,680 |

are 230,080 tons of capacity for producing steel for castings. Similarly, the electric and crucible figure includes 124,790 tons for steel for castings.

Although open-hearth capacity increased 9 per cent from Jan. 1, 1948, to Jan. 1, 1951, the number of open hearths dropped from 954 to 947. This emphasizes the growth in size of open hearths. In 1950, a Midwestern steel plant completed installation of an open hearth with a capacity of 550 tons per heat, three to four times that of many furnaces.

Size of electric furnaces installed has increased too. On Jan. 1, 1948, there were 222 electric furnaces with a total annual capacity of 5,396,750 net tons, or an average annual capacity of 24,309 tons per furnace. With 256 electric furnaces in existence on Jan. 1, 1951, and as their total capacity was 7,570,810 net tons, their average annual capacity was 29,573 tons per furnace.

The jump in electric furnace capacity from Jan. 1, 1948, to Jan. 1, 1951, was 40 per cent.

Crucible steel production had all but passed out of existence. As has been the case for the last several years the only remaining crucible furnace is the 2 ton one at Burnham, Pa.

Although open-hearth and electric steel capaciti were at all-time high marks on Jan. 1, 1951, bessem was not. The latter had risen some, however, ov the last two years. On Jan. 1, 1951, bessemer c pacity totaled 5,621,000 net tons, compared wi 8,842,400 tons in 1934 and 1935. There were 41 be semer converters on Jan. 1, 1951, an increase of tw over Jan. 1, 1948. As was the case in 1948, ten the converters on Jan. 1, 1951, were used only melting charges for open hearths.

The large increase in steel capacity is distribute throughout all of the six steel producing districts the United States. In each the 1951 capacity e ceeded the 1939 capacity, and the capacity projecte for 1953 will bring an increase over 1951 levels each of the districts. Percentagewise, however, t Pittsburgh-Youngstown district and the Chicago di trict will have less in 1953 than in 1939 and 195 This is because of the greater rate of growth in oth districts.

## STEEL INGOT CAPACITY BY PLANT LOCATION AND OPERATING COMPANY

| | OPEN HEARTH | | BESSEMER | | ELECTRIC AND CRUCIBLE | | Total annual capacity (N. T.) |
|---|---|---|---|---|---|---|---|
| | No. | Annual capacity (N. T.) | No. | Annual capacity (N. T.) | No. | Annual capacity (N. T.) | |
| **Alabama** | | | | | | | |
| Anniston | | | | | | | |
| Kilby Steel Co. | .... | ..... | .... | ..... | 3 | 34,020 | 34,020 |
| Birmingham | | | | | | | |
| Connors Steel Co. | .... | ..... | .... | ..... | 2 | 60,000 | 60,000 |
| Ensley | | | | | | | |
| Tennessee Coal, Iron & Railroad Company | 9 | 1,568,000 | (c) 3 | ..... | .... | ..... | 1,568,000 |
| Fairfield | | | | | | | |
| Tennessee Coal, Iron & Railroad Company | 12 | 1,352,000 | .... | ..... | .... | ..... | 1,352,000 |
| Gadsden | | | | | | | |
| Republic Steel Corp. | 8 | 745,000 | .... | ..... | .... | ..... | 745,000 |
| TOTAL | 29 | 3,665,000 | (c) 3 | ..... | 5 | 94,020 | 3,759,020 |
| **California** | | | | | | | |
| Emeryville | | | | | | | |
| Judson Steel Corp. | 3 | 76,500 | .... | ..... | .... | ..... | 76,500 |
| Fontana | | | | | | | |
| Kaiser Steel Corp. | 7 | 1,200,000 | .... | ..... | .... | ..... | 1,200,000 |
| Los Angeles | | | | | | | |
| Bethlehem Pacific Coast Steel Corp. | 3 | 84,000 | .... | ..... | 2 | 240,000 | 324,000 |
| (b) Southwest Steel Rolling Mills | .... | ..... | .... | ..... | 1 | 36,000 | 36,000 |
| Niles | | | | | | | |
| Pacific States Steel Corp. | 2 | 140,000 | .... | ..... | 2 | 91,300 | 231,300 |
| Pittsburg | | | | | | | |
| Columbia Steel Co. | 7 | 364,700 | .... | ..... | .... | ..... | 364,700 |
| South San Francisco | | | | | | | |
| Bethlehem Pacific Coast Steel Corp. | 5 | 240,000 | .... | ..... | .... | ..... | 240,000 |
| Torrance | | | | | | | |
| Columbia Steel Co. | 4 | 201,700 | .... | ..... | 1 | 12,000 | 213,700 |
| National Supply Co. | ... | ... | .... | ..... | 3 | 50,400 | 50,400 |
| TOTAL | 31 | 2,306,900 | .... | ..... | 9 | 429,700 | 2,736,600 |
| **Colorado** | | | | | | | |
| Pueblo | | | | | | | |
| Colorado Fuel and Iron Corp. | 16 | 1,320,000 | .... | ..... | .... | ..... | 1,320,000 |
| **Connecticut** | | | | | | | |
| Bridgeport | | | | | | | |
| Stanley Works | 3 | 188,280 | .... | ..... | .... | ..... | 188,280 |
| **Delaware** | | | | | | | |
| Claymont | | | | | | | |
| Claymont Steel Corp. | 7 | 468,000 | .... | ..... | .... | ..... | 468,000 |
| **Georgia** | | | | | | | |
| Atlanta | | | | | | | |
| Atlantic Steel Co. | 3 | 188,000 | .... | ..... | .... | ..... | 188,000 |
| **Illinois** | | | | | | | |
| Alton | | | | | | | |
| Laclede Steel Co. | 4 | 397,840 | .... | ..... | .... | ..... | 397,840 |
| Chicago Heights | | | | | | | |
| American Locomotive Co. | 3 | 78,000 | .... | ..... | .... | ..... | 78,000 |
| Columbia Tool Steel Co. | .... | ..... | .... | ..... | 2 | 6,600 | 6,600 |
| Granite City | | | | | | | |
| Granite City Steel Co. | 13 | 720,000 | .... | ..... | .... | ..... | 720,000 |
| Peoria | | | | | | | |
| Keystone Steel & Wire Co. | 3 | 325,000 | .... | ..... | .... | ..... | 325,000 |
| South Chicago | | | | | | | |
| International Harvester Company | 11 | 900,000 | .... | ..... | .... | ..... | 900,000 |
| Republic Steel Corp. | 4 | 500,000 | .... | ..... | 9 | 600,000 | 1,100,000 |
| United States Steel Co. | 31 | 3,905,000 | 3 | 500,000 | 8 | 270,000 | 4,675,000 |
| Sterling | | | | | | | |
| Northwestern Steel & Wire Company | .... | ..... | .... | ..... | 3 | 321,000 | 321,000 |
| TOTAL | 69 | 6,825,840 | 3 | 500,000 | 22 | 1,197,600 | 8,523,440 |
| **Indiana** | | | | | | | |
| East Chicago | | | | | | | |
| Youngstown Sheet and Tube Company | 9 | 1,196,000 | 2 | 330,000 | .... | ..... | 1,526,000 |
| Fort Wayne | | | | | | | |
| Joslyn Mfg. & Supply Company | .... | ..... | .... | ..... | 3 | 37,500 | 37,500 |
| Gary | | | | | | | |
| United States Steel Co. | 55 | 6,025,700 | (c) 3 | ..... | .... | ..... | 6,025,700 |
| Indiana Harbor | | | | | | | |
| Inland Steel Company | 36 | 3,750,000 | .... | ..... | .... | ..... | 3,750,000 |
| Kokomo | | | | | | | |
| Continental Steel Corp. | 5 | 393,760 | .... | ..... | .... | ..... | 393,760 |
| New Castle | | | | | | | |
| Borg-Warner Corp. | .... | ..... | .... | ..... | 3 | 28,350 | 28,350 |
| TOTAL | 105 | 11,365,460 | 5 | 330,000 | 6 | 65,850 | 11,761,310 |
| **Kentucky** | | | | | | | |
| Ashland | | | | | | | |
| Armco Steel Corporation | 8 | 900,000 | .... | ..... | .... | ..... | 900,000 |
| Newport | | | | | | | |
| Newport Steel Corp. | 7 | 413,100 | .... | ..... | 3 | 291,600 | 704,700 |
| TOTAL | 15 | 1,313,100 | .... | ..... | 3 | 291,600 | 1,604,700 |
| **Maryland** | | | | | | | |
| Baltimore | | | | | | | |
| Armco Steel Corporation | .... | ..... | .... | ..... | 6 | 102,000 | 102,000 |
| Colgate | | | | | | | |
| Eastern Stainless Steel Corp. | .... | ..... | .... | ..... | 4 | 12,000 | 12,000 |
| Sparrows Point | | | | | | | |
| Bethlehem Steel Co. | 28 | 4,824,000 | 3 | 336,000 | .... | ..... | 5,160,000 |
| TOTAL | 28 | 4,824,000 | 3 | 336,000 | 10 | 114,000 | 5,274,000 |
| **Massachusetts** | | | | | | | |
| Worcester | | | | | | | |
| American Steel & Wire Company | 4 | 250,000 | .... | ..... | .... | ..... | 250,000 |
| **Michigan** | | | | | | | |
| Dearborn | | | | | | | |
| Ford Motor Company | 10 | 1,246,580 | .... | ..... | 17 | 225,360 | 1,471,940 |
| Detroit | | | | | | | |
| Rotary Electric Steel Company | .... | ..... | .... | ..... | 5 | 425,000 | 425,000 |
| Ecorse | | | | | | | |
| Great Lakes Steel Corp. | 17 | 2,450,000 | (c) 2 | ..... | .... | ..... | 2,450,000 |
| Ferndale | | | | | | | |
| Allegheny Ludlum Steel Corporation | .... | ..... | .... | ..... | 5 | 3,000 | 3,000 |
| Trenton | | | | | | | |
| McLouth Steel Corp. | .... | ..... | .... | ..... | 4 | 420,000 | 420,000 |
| TOTAL | 27 | 3,696,580 | (c) 2 | ..... | 31 | 1,073,360 | 4,769,940 |
| **Minnesota** | | | | | | | |
| Duluth | | | | | | | |
| American Steel & Wire Company | 9 | 918,000 | .... | ..... | .... | ..... | 918,000 |
| **Missouri** | | | | | | | |
| Kansas City | | | | | | | |
| Sheffield Steel Corp. | 5 | 420,000 | .... | ..... | .... | ..... | 420,000 |

Steel (Ingots and Steel for Castings) (*Continued*)

| | OPEN HEARTH | | BESSEMER | | ELECTRIC AND CRUCIBLE | | Total annual capacity (N. T.) |
|---|---|---|---|---|---|---|---|
| | No. | Annual capacity (N. T.) | No. | Annual capacity (N. T.) | No. | Annual capacity (N. T.) | |
| **New Jersey** | | | | | | | |
| Harrison | | | | | | | |
| Crucible Steel Company of America | .... | ..... | .... | ..... | 12 | 2,160 | 2,160 |
| Roebling | | | | | | | |
| Roebling's Sons Co., J. A. | 9 | 204,870 | .... | ..... | .... | ..... | 204,870 |
| TOTAL | 9 | 204,870 | .... | ..... | 12 | 2,160 | 207,030 |
| **New York** | | | | | | | |
| Buffalo | | | | | | | |
| Republic Steel Corp. | 9 | 870,000 | .... | ..... | .... | ..... | 870,000 |
| Dunkirk | | | | | | | |
| Allegheny Ludlum Steel Corporation | .... | ..... | .... | ..... | 3 | 33,000 | 33,000 |
| Lackawanna | | | | | | | |
| Bethlehem Steel Co. | 30 | 3,920,000 | .... | ..... | .... | ..... | 3,920,000 |
| Lockport | | | | | | | |
| Simonds Saw & Steel Co. | .... | ..... | .... | ..... | 3 | 21,600 | 21,600 |
| Syracuse | | | | | | | |
| Crucible Steel Company of America | .... | ..... | .... | ..... | 6 | 56,280 | 56,280 |
| Tonawanda | | | | | | | |
| Allegheny Ludlum Steel Corporation | .... | ..... | .... | ..... | 2 | 4,500 | 4,500 |
| Colorado Fuel & Iron Corp. | 4 | 240,000 | .... | ..... | .... | ..... | 240,000 |
| Watervliet | | | | | | | |
| Allegheny Ludlum Steel Corporation | .... | ..... | .... | ..... | 3 | 25,000 | 25,000 |
| TOTAL | 43 | 5,030,000 | .... | ..... | 17 | 140,380 | 5,170,380 |
| **Ohio** | | | | | | | |
| Campbell | | | | | | | |
| Youngstown Sheet and Tube Company | 12 | 1,302,000 | 2 | 240,000 | .... | ..... | 1,542,000 |
| Canton | | | | | | | |
| Industrial Forge & Steel, Inc. | 2 | 48,600 | .... | ..... | .... | ..... | 48,600 |
| Reconstruction Finance Corp. | .... | ..... | .... | ..... | 5 | 360,000 | 360,000 |
| Republic Steel Corp. | 6 | 475,000 | .... | ..... | 12 | 500,000 | 975,000 |
| Timken Roller Bearing Co. | 3 | 201,600 | .... | ..... | 6 | 345,600 | 547,200 |
| Cleveland | | | | | | | |
| Jones & Laughlin Steel Corp. | 9 | 945,000 | .... | ..... | .... | ..... | 945,000 |
| Republic Steel Corp. | 15 | 1,637,000 | .... | ..... | .... | ..... | 1,637,000 |
| Lorain | | | | | | | |
| National Tube Co. | 12 | 1,350,000 | 3 | 900,000 | .... | ..... | 2,250,000 |
| Lowellville | | | | | | | |
| Sharon Steel Corp. | 5 | 400,000 | .... | ..... | 2 | 60,000 | 460,000 |
| Mansfield | | | | | | | |
| Empire Steel Co. | 6 | 390,320 | .... | ..... | .... | ..... | 390,320 |
| Massillon | | | | | | | |
| Republic Steel Corp. | 9 | 610,000 | .... | ..... | .... | ..... | 610,000 |
| Middletown | | | | | | | |
| Armco Steel Corp. | 11 | 1,312,000 | .... | ..... | 2 | 228,000 | 1,540,000 |
| Portsmouth | | | | | | | |
| Detroit Steel Corp. | 10 | 650,000 | .... | ..... | .... | ..... | 650,000 |
| Steubenville | | | | | | | |
| Wheeling Steel Corp. | 11 | 1,440,000 | .... | ..... | .... | ..... | 1,440,000 |
| Toronto | | | | | | | |
| Ohio River Steel Corp. | 4 | 121,200 | .... | ..... | .... | ..... | 121,200 |
| Warren | | | | | | | |
| Copperweld Steel Co. | .... | ..... | .... | ..... | 7 | 554,400 | 554,400 |
| Republic Steel Corp. | 8 | 900,000 | .... | ..... | .... | ..... | 900,000 |
| Youngstown | | | | | | | |
| Republic Steel Corp. | 15 | 1,465,000 | 2 | 665,000 | .... | ..... | 2,130,000 |
| United States Steel Co. | 15 | 1,700,000 | 2 | 784,000 | .... | ..... | 2,484,000 |
| Youngstown Sheet and Tube Co. | 12 | 1,182,000 | .... | ..... | .... | ..... | 1,182,000 |
| TOTAL | 165 | 16,129,720 | 9 | 2,589,000 | 34 | 2,048,000 | 20,766,720 |
| **Oklahoma** | | | | | | | |
| Sand Springs | | | | | | | |
| Sheffield Steel Corp. | 1 | 54,000 | .... | ..... | .... | ..... | 54,000 |
| **Oregon** | | | | | | | |
| Portland | | | | | | | |
| Oregon Steel Mills | .... | ..... | .... | ..... | 3 | 110,000 | 110,000 |
| **Pennsylvania** | | | | | | | |
| Aliquippa | | | | | | | |
| Jones & Laughlin Steel Corp. | 5 | 1,182,000 | 3 | 582,000 | .... | ..... | 1,764,000 |
| Vulcan Crucible Steel Co. | .... | ..... | .... | ..... | 2 | 9,600 | 9,600 |
| Beaver Falls | | | | | | | |
| Babcock & Wilcox Tube Co. | .... | ..... | .... | ..... | 2 | 64,800 | 64,800 |
| Bethlehem | | | | | | | |
| Bethlehem Steel Co. | 32 | 2,922,000 | .... | ..... | 8 | 158,000 | 3,080,000 |
| Brackenridge | | | | | | | |
| Allegheny Ludlum Steel Corp. | 7 | 260,160 | .... | ..... | 15 | 506,700 | 766,860 |
| Braddock | | | | | | | |
| United States Steel Co. | 16 | 2,080,400 | .... | ..... | .... | ..... | 2,080,400 |
| Braeburn | | | | | | | |
| Braeburn Alloy Steel Corp. | .... | ..... | .... | ..... | 2 | 20,730 | 20,730 |
| Bridgeville | | | | | | | |
| Universal-Cyclops Steel Corp. | .... | ..... | .... | ..... | 4 | 54,120 | 54,120 |
| Burnham | | | | | | | |
| Baldwin-Lima-Hamilton Corp. | 5 | 149,280 | .... | ..... | (a) 1 | 20 | 149,300 |
| Butler | | | | | | | |
| Armco Steel Corporation | 6 | 408,000 | .... | ..... | 1 | 66,000 | 474,000 |
| Carnegie | | | | | | | |
| Union Electric Steel Corporation | .... | ..... | .... | ..... | 2 | 26,760 | 26,760 |
| Clairton | | | | | | | |
| United States Steel Co. | 12 | 870,000 | .... | ..... | .... | ..... | 870,000 |
| Coatesville | | | | | | | |
| Lukens Steel Company | 12 | 675,000 | .... | ..... | .... | ..... | 675,000 |
| Conora | | | | | | | |
| American Steel & Wire Company | 13 | 900,000 | .... | ..... | .... | ..... | 900,000 |

Steel (Ingots and Steel for Castings) (*Continued*)

| | OPEN HEARTH | | BESSEMER | | ELECTRIC AND CRUCIBLE | | Total annual capacity (N. T.) |
|---|---|---|---|---|---|---|---|
| | No. | Annual capacity (N. T.) | No. | Annual capacity (N. T.) | No. | Annual capacity (N. T.) | |
| Duquesne | | | | | | | |
| United States Steel Co. | 27 | 1,800,000 | .... | ..... | 4 | 142,800 | 1,942,800 |
| Erie | | | | | | | |
| Erie Forge Company | 3 | 85,000 | .... | ..... | .... | ..... | 85,000 |
| Farrell | | | | | | | |
| Sharon Steel Corp. | 14 | 981,400 | .... | ..... | .... | ..... | 981,400 |
| Greenville | | | | | | | |
| Vacuum Melt, Inc. | .... | ..... | .... | ..... | 3 | 1,800 | 1,800 |
| Harmony Township | | | | | | | |
| Byers Company, A. M. | .... | ..... | .... | ..... | 2 | 75,000 | 75,000 |
| Harrisburg | | | | | | | |
| Central Iron & Steel Co. | 5 | 360,000 | .... | ..... | 1 | 46,000 | 406,000 |
| Harrisburg Steel Co. | 3 | 100,750 | .... | ..... | .... | ..... | 100,750 |
| Irvine | | | | | | | |
| National Forge & Ordnance Company | .... | ..... | .... | ..... | 3 | 25,000 | 25,000 |
| Ivy Rock | | | | | | | |
| Alan Wood Steel Co. | 7 | 550,000 | .... | ..... | .... | ..... | 550,000 |
| Johnstown | | | | | | | |
| Bethlehem Steel Co. | 21 | 1,788,000 | 3 | 240,000 | .... | ..... | 2,028,000 |
| United States Steel Co. | 2 | 18,900 | .... | ..... | 1 | 5,500 | 24,400 |
| Latrobe | | | | | | | |
| American Locomotive Company | 3 | 103,000 | .... | ..... | .... | ..... | 103,000 |
| Latrobe Electric Steel Company | .... | ..... | .... | ..... | 4 | 12,000 | 12,000 |
| Vanadium-Alloys Steel Company | .... | ..... | .... | ..... | 3 | 11,910 | 11,910 |
| McKeesport | | | | | | | |
| Firth Sterling Steel & Carbide Corp. | .... | ..... | .... | ..... | 3 | 20,040 | 20,040 |
| National Tube Co. | 3 | 876,000 | 3 | 288,000 | .... | ..... | 1,164,000 |
| Midland | | | | | | | |
| Crucible Steel Company of America | 11 | 867,000 | .... | ..... | 6 | 228,000 | 1,095,000 |
| Milton | | | | | | | |
| Boiardi Steel Corp. | .... | ..... | .... | ..... | 2 | 50,760 | 50,760 |
| Monaca | | | | | | | |
| Colonial Steel Co. | .... | ..... | .... | ..... | 1 | 7,020 | 7,020 |
| Monessen | | | | | | | |
| Pittsburgh Steel Co. | 12 | 1,072,000 | .... | ..... | .... | ..... | 1,072,000 |
| Munhall | | | | | | | |
| United States Steel Co. | 61 | 4,866,000 | .... | ..... | .... | ..... | 4,866,000 |
| Oakmont | | | | | | | |
| Edgewater Steel Co. | 3 | 146,470 | .... | ..... | .... | ..... | 146,470 |
| Philadelphia | | | | | | | |
| Disston & Sons, Inc., Henry | .... | ..... | .... | ..... | 2 | 25,000 | 25,000 |
| Midvale Company | 6 | 324,430 | .... | ..... | 9 | 92,940 | 417,370 |
| Phoenixville | | | | | | | |
| Phoenix Iron & Steel Co. | 6 | 431,430 | .... | ..... | .... | ..... | 431,430 |
| Pittsburgh | | | | | | | |
| Heppenstall Company | 2 | 39,880 | .... | ..... | 1 | 3,000 | 42,880 |
| Jones & Laughlin Steel Corporation | 16 | 1,800,000 | 3 | 336,000 | 1 | 1,500 | 2,137,500 |
| Reading | | | | | | | |
| Carpenter Steel Co. | .... | ..... | .... | ..... | 7 | 81,360 | 81,360 |
| Steelton | | | | | | | |
| Bethlehem Steel Co. | 11 | 1,032,000 | .... | ..... | .... | ..... | 1,032,000 |
| Vandergrift | | | | | | | |
| United States Steel Co. | 12 | 480,000 | .... | ..... | .... | ..... | 480,000 |
| Washington | | | | | | | |
| Jessop Steel Company | .... | ..... | .... | ..... | 4 | 41,560 | 41,560 |
| West Homestead | | | | | | | |
| Mesta Machine Co. | 4 | 85,000 | .... | ..... | 1 | 20,000 | 105,000 |
| TOTAL | 340 | 27,254,100 | 12 | 1,446,000 | (f) 95 | 1,797,920 | 30,498,020 |
| **Rhode Island** | | | | | | | |
| Phillipsdale | | | | | | | |
| Washburn Wire Co. | 4 | 93,000 | .... | ..... | .... | ..... | 93,000 |
| **Tennessee** | | | | | | | |
| Knoxville | | | | | | | |
| Knoxville Iron Co. | .... | ..... | .... | ..... | 2 | 38,000 | 38,000 |
| **Texas** | | | | | | | |
| Fort Worth | | | | | | | |
| Texas Steel Company | .... | ..... | .... | ..... | 2 | 22,320 | 22,320 |
| Houston | | | | | | | |
| Sheffield Steel Corporation | 8 | 840,000 | .... | ..... | .... | ..... | 840,000 |
| TOTAL | 8 | 840,000 | .... | ..... | 2 | 22,320 | 862,320 |
| **Utah** | | | | | | | |
| Geneva | | | | | | | |
| Geneva Steel Co. | 9 | 1,440,000 | .... | ..... | .... | ..... | 1,440,000 |
| **Virginia** | | | | | | | |
| Newport News | | | | | | | |
| (b) Newport News Shipbuilding & Dry Dock Company | .... | ..... | .... | ..... | 3 | 12,000 | 12,000 |
| **Washington** | | | | | | | |
| Seattle | | | | | | | |
| Bethlehem Pacific Coast Steel Corp. | 5 | 216,000 | .... | ..... | .... | ..... | 216,000 |
| Isaacson Iron Works | .... | ..... | .... | ..... | 2 | 101,520 | 101,520 |
| Northwest Steel Rolling Mills, Inc. | .... | ..... | .... | ..... | 1 | 32,400 | 32,400 |
| TOTAL | 5 | 216,000 | .... | ..... | 3 | 133,920 | 349,920 |
| **West Virginia** | | | | | | | |
| Benwood | | | | | | | |
| Wheeling Steel Corp. | .... | ..... | 2 | 420,000 | .... | ..... | 420,000 |
| Weirton | | | | | | | |
| Weirton Steel Co. | 12 | 2,300,000 | (c) 2 | ..... | .... | ..... | 2,300,000 |
| TOTAL | 12 | 2,300,000 | 4 | 420,000 | .... | ..... | 2,720,000 |
| GRAND TOTAL | 947 | 91,310,850 | (e) 41 | 5,621,000 | (f)257 | 7,570,830 | 104,502,680 |

(a) Crucible furnace.
(b) Not described in this Directory.
(c) Used in melting charge for open hearth furnaces.
(d) Includes 3 converters used only in melting charge for open hearth furnaces.
(e) Includes 10 converters used only in melting charge for open hearth furnaces.
(f) Includes 1 crucible furnace, annual capacity, 20 tons.

# FINISHED HOT-ROLLED STEEL CAPACITY BY STATES

| Products | ANNUAL CAPACITY (N. T.) | | |
|---|---|---|---|
| | Steel | Iron | Total |
| States: | | | |
| Alabama | 3,633,900 | ..... | 3,633,900 |
| California | 2,402,020 | ..... | 2,402,020 |
| Colorado | 1,018,500 | ..... | 1,018,500 |
| Connecticut | 130,000 | ..... | 130,000 |
| Delaware | 300,000 | ..... | 300,000 |
| Georgia | 145,000 | ..... | 145,000 |
| Illinois | 6,549,240 | ..... | 6,549,240 |
| Indiana | 10,288,800 | 4,500 | 10,293,300 |
| Kentucky | 1,008,000 | ..... | 1,008,000 |
| Maryland | 4,889,940 | ..... | 4,889,940 |
| Massachusetts | 234,100 | ..... | 234,100 |
| Michigan | 4,547,300 | ..... | 4,547,300 |
| Minnesota | 247,300 | ..... | 247,300 |
| Missouri | 410,000 | ..... | 410,000 |
| New Jersey | 221,000 | ..... | 221,000 |
| New York | 4,172,030 | ..... | 4,172,030 |
| Ohio | 16,467,520 | 8,000 | 16,475,520 |
| Oklahoma | 43,200 | ..... | 43,200 |
| Oregon | 100,000 | ..... | 100,000 |
| Pennsylvania | 21,297,840 | 340,000 | 21,637,840 |
| Rhode Island | 122,200 | ..... | 122,200 |
| Tennessee | 90,000 | ..... | 90,000 |
| Texas | 698,000 | ..... | 698,000 |
| Utah | 1,595,000 | ..... | 1,595,000 |
| Virginia | 47,000 | ..... | 47,000 |
| Washington | 201,000 | ..... | 201,000 |
| West Virginia | 2,817,000 | ..... | 2,817,000 |
| Wisconsin | 24,000 | ..... | 24,000 |
| GRAND TOTAL | 83,699,890 | 352,500 | 84,052,390 |

Finished

**In reaching alltime high, hot-rolling capacity of steel industry in United States expands at slightly faster pace than capacity for producing steel ingots. Hot-rolling capacity on Jan. 1, 1951, was 13 per cent above that of three years earlier**

# FINISHED HOT-ROLLED STEEL CAPACITY BY COMPANIES

| Products | ANNUAL CAPACITY (N. T.) | | |
|---|---|---|---|
| | Steel | Iron | Total |
| Companies: | | | |
| Acme Steel Company | 545,000 | ..... | 545,000 |
| Alan Wood Steel Company | 431,100 | ..... | 431,100 |
| Allegheny Ludlum Steel Corporation | 314,650 | ..... | 314,650 |
| American Chain & Cable Company, Inc. | 175,000 | ..... | 175,000 |
| American Locomotive Company | 123,000 | ..... | 123,000 |
| American Swedo Iron Corporation | 12,000 | ..... | 12,000 |
| Ames & Company, Inc., W. | 35,000 | ..... | 35,000 |
| Armco Steel Corporation | 2,077,940 | ..... | 2,077,940 |
| Sheffield Steel Corporation | 1,013,200 | ..... | 1,013,200 |
| TOTAL | 3,091,140 | ..... | 3,091,140 |
| Atlantic Steel Company | 145,000 | ..... | 145,000 |
| Babcock & Wilcox Tube Company | 39,600 | ..... | 39,600 |
| Baldwin-Lima-Hamilton Corporation | 91,750 | ..... | 91,750 |
| Barium Steel Corporation: | | | |
| Central Iron and Steel Company | 288,000 | ..... | 288,000 |
| Phoenix Iron & Steel Company | 259,000 | ..... | 259,000 |
| TOTAL | 547,000 | ..... | 547,000 |
| Bethlehem Steel Corporation: | | | |
| Bethlehem Steel Company | 11,746,000 | ..... | 11,746,000 |
| Bethlehem Pacific Coast Steel Corporation | 622,000 | ..... | 622,000 |
| TOTAL | 12,368,000 | ..... | 12,368,000 |
| Boiardi Steel Corporation | 80,000 | ..... | 80,000 |
| Borg-Warner Corporation | 300,000 | ..... | 300,000 |
| Braeburn Alloy Steel Corporation | 3,200 | ..... | 3,200 |
| Buffalo Bolt Company | 65,600 | ..... | 65,600 |
| Buffalo Steel Company | 80,000 | ..... | 80,000 |
| Byers Company, A. M. | 210,000 | 310,000 | 520,000 |
| Carpenter Steel Company | 24,600 | ..... | 24,600 |
| Colorado Fuel and Iron Corporation | 1,162,500 | ..... | 1,162,500 |
| Claymont Steel Corporation | 300,000 | ..... | 300,000 |
| TOTAL | 1,462,500 | ..... | 1,462,500 |
| Columbia Tool Steel Company | 1,800 | ..... | 1,800 |
| Connors Steel Company | 94,000 | ..... | 94,000 |
| Continental Steel Corporation | 285,000 | ..... | 285,000 |
| Copperweld Steel Company | 375,000 | ..... | 375,000 |
| Crucible Steel Company of America | 670,100 | ..... | 670,100 |
| Detroit Steel Corporation | 180,000 | ..... | 180,000 |
| Disston & Sons, Inc., Henry | 38,600 | ..... | 38,600 |
| Driver Company, Wilbur B. | 6,000 | ..... | 6,000 |
| Eastern Stainless Steel Corporation | 18,000 | ..... | 18,000 |
| Edgewater Steel Company | 81,960 | ..... | 81,960 |
| Empire Steel Company | 144,000 | ..... | 144,000 |
| Falls Hollow Staybolt Company | ..... | 8,000 | 8,000 |
| Firth Sterling Steel and Carbide Corporation | 11,550 | ..... | 11,550 |
| Ford Motor Company | 1,120,000 | ..... | 1,120,000 |
| Granite City Steel Company | 490,000 | ..... | 490,000 |
| Harrisburg Steel Corporation | 75,000 | ..... | 75,000 |
| Heller Brothers Company | 18,000 | ..... | 18,000 |
| Highland Iron & Steel, Inc. | 40,500 | 4,500 | 45,000 |
| Inland Steel Company | 3,050,000 | ..... | 3,050,000 |
| International Harvester Company | 677,300 | ..... | 677,300 |
| Jersey Shore Steel Company | 30,000 | ..... | 30,000 |
| Jessop Steel Company | 20,000 | ..... | 20,000 |
| Jones & Laughlin Steel Corporation | 3,886,200 | ..... | 3,886,200 |
| Joslyn Manufacturing & Supply Company | 18,000 | ..... | 18,000 |
| Judson Steel Corporation | 54,000 | ..... | 54,000 |
| Kaiser Steel Corporation | 888,000 | ..... | 888,000 |
| Keystone Steel & Wire Company | 282,000 | ..... | 282,000 |
| Knoxville Iron Company | 90,000 | ..... | 90,000 |
| Laclede Steel Company | 427,500 | ..... | 427,500 |
| Latrobe Electric Steel Company | 5,500 | ..... | 5,500 |
| Lockhart Iron and Steel Company | 30,000 | 30,000 | 60,000 |
| Lukens Steel Company | 486,000 | ..... | 486,000 |
| McLouth Steel Corporation | 552,300 | ..... | 552,300 |
| Mahoning Valley Steel Company | 120,000 | ..... | 120,000 |
| Midvale Company | 60,000 | ..... | 60,000 |
| Missouri Rolling Mill Corporation | 70,000 | ..... | 70,000 |
| National Steel Corporation: | | | |
| Great Lakes Steel Corporation | 2,695,000 | ..... | 2,695,000 |
| Weirton Steel Company | 2,275,000 | ..... | 2,275,000 |
| TOTAL | 4,970,000 | ..... | 4,970,000 |
| Newport Steel Corporation | 480,000 | ..... | 480,000 |
| Northern Steel Inc. | 15,000 | ..... | 15,000 |
| Northwest Steel Rolling Mills, Inc. | 25,000 | ..... | 25,000 |
| Northwestern Steel & Wire Company | 218,000 | ..... | 218,000 |
| Oregon Steel Mills | 100,000 | ..... | 100,000 |
| Pacific States Steel Corporation | 155,000 | ..... | 155,000 |
| Parkersburg Steel Company | 36,000 | ..... | 36,000 |
| Superior Sheet Steel Division | 140,000 | ..... | 140,000 |
| TOTAL | 176,000 | ..... | 176,000 |
| Phoenix Manufacturing Company | 15,000 | ..... | 15,000 |
| Pittsburgh Steel Company | 660,000 | ..... | 660,000 |
| Pollak Steel Company | 90,000 | ..... | 90,000 |
| Poor & Company | 12,000 | ..... | 12,000 |
| Reeves Steel and Manufacturing Company | 75,000 | ..... | 75,000 |
| Republic Steel Corporation | 7,155,000 | ..... | 7,155,000 |
| Roebling's Sons Company (John A.) | 162,000 | ..... | 162,000 |
| Rotary Electric Steel Company | 180,000 | ..... | 180,000 |
| Sharon Steel Corporation | 645,000 | ..... | 645,000 |
| Niles Rolling Mill Company | 150,000 | ..... | 150,000 |
| TOTAL | 795,000 | ..... | 795,000 |
| Sheet Steel Mills Inc. | 55,000 | ..... | 55,000 |
| Simmons Company | 36,000 | ..... | 36,000 |
| Simonds Saw and Steel Company | 11,180 | ..... | 11,180 |
| Stanley Works | 130,000 | ..... | 130,000 |
| Superior Steel Corporation | 115,000 | ..... | 115,000 |
| Sweet's Steel Company | 104,000 | ..... | 104,000 |
| Texas Steel Company | 68,000 | ..... | 68,000 |
| Timken Roller Bearing Company | 329,500 | ..... | 329,500 |
| Tredegar Company | 47,000 | ..... | 47,000 |
| United States Steel Corporation: | | | |
| American Steel and Wire Company | 2,181,640 | ..... | 2,181,640 |
| Columbia Steel Company | 847,020 | ..... | 847,020 |
| Geneva Steel Company | 1,595,000 | ..... | 1,595,000 |
| National Tube Company | 2,759,800 | ..... | 2,759,800 |
| Tennessee Coal, Iron and Railroad Company | 2,954,900 | ..... | 2,954,900 |
| United States Steel Company | 17,194,860 | ..... | 17,194,860 |
| TOTAL | 27,533,220 | ..... | 27,533,220 |
| Universal-Cyclops Steel Corporation | 52,300 | ..... | 52,300 |
| Vanadium-Alloys Steel Company | 6,000 | ..... | 6,000 |
| Colonial Steel Company | 7,840 | ..... | 7,840 |
| TOTAL | 13,840 | ..... | 13,840 |
| Vulcan Crucible Steel Company | 3,000 | ..... | 3,000 |
| Washburn Wire Company | 122,200 | ..... | 122,200 |
| West Virginia Steel and Mfg. Company | 140,000 | ..... | 140,000 |
| Wheeling Steel Corporation | 1,566,000 | ..... | 1,566,000 |
| Whitney Apollo Corporation (The) | 132,000 | ..... | 132,000 |
| Wickwire Brothers, Inc. | 35,000 | ..... | 35,000 |
| Youngstown Sheet and Tube Company | 3,383,200 | ..... | 3,383,200 |
| GRAND TOTAL | 83,699,890 | 352,500 | 84,052,390 |

# Steel...

XPANSION in the nation's steel ingot capacity cessitated an increase in the country's rolling ca-city.

American Iron & Steel Institute figures show the el industry's capacity for hot-rolling steel rose m 73,872,430 net tons on Jan. 1, 1948, to an all-ie record of 83,699,890 net tons on Jan. 1, 1951.

nstallation of new hot-rolling capacity and ex-nsion of existing equipment has gone at a little ter pace than the expansion of steel ingot capacity. Jan. 1, 1948, there was 78.7 per cent as much -rolling capacity as there was steel ingot ca-ity, but by Jan. 1, 1951, the percentage had risen 80.4.

This rise in hot-rolling capacity was 13 per cent. the same length of time, steel ingot capacity rose per cent.

## FINISHED HOT-ROLLED STEEL CAPACITY BY PRODUCTS

| Products | ANNUAL CAPACITY (N. T.) Steel | Iron | Total |
|---|---|---|---|
| Rails—60 lbs. or less per yard | 323,400 | ..... | 323,400 |
| " —Over 60 lbs. per yard | 2,383,600 | ..... | 2,383,600 |
| Long joint or splice bars and tie plates | 912,770 | ..... | 912,770 |
| Structural shapes—Heavy | 5,855,150 | ..... | 5,855,150 |
| " " —Light | 912,360 | ..... | 912,360 |
| Steel piling (Rolled) | 282,300 | ..... | 282,300 |
| Plates—Sheared | 6,858,650 | ..... | 6,858,650 |
| " —Universal | 1,401,930 | ..... | 1,401,930 |
| Sheets—Hot rolled | 24,890,230 | ..... | 24,890,230 |
| Strip—Hot rolled | 4,907,550 | ..... | 4,907,550 |
| Strip for cold reduced black plate and tin plate | 4,694,530 | ..... | 4,694,530 |
| Bars—Other than concrete reinforcement | 11,935,310 | 42,500 | 11,977,810 |
| " —Concrete reinforcement—New billet steel | 1,254,560 | ..... | 1,254,560 |
| " " " —Rerolled | 403,500 | ..... | 403,500 |
| Wire rods | 6,360,350 | ..... | 6,360,350 |
| Skelp | 4,956,700 | 310,000 | 5,266,700 |
| Blanks or pierced billets for seamless tubes | 3,938,100 | ..... | 3,938,100 |
| Wheels and axles (Rolled) | 446,350 | ..... | 446,350 |
| Ingots, blooms and billets for forging purposes | 677,790 | ..... | 677,790 |
| All other finished hot rolled | 304,760 | ..... | 304,760 |
| TOTAL | 83,699,890 | 352,500 | 84,052,390 |
| TOTAL STEEL INGOT CAPACITY | 104,502,680 | ..... | ..... |
| PERCENT TO INGOT CAPACITY | 80.1% | ..... | ..... |

Comparisons of hot-rolling capacity with steel ingot capacity, not including steel for castings, follow:

| | Jan. 1, 1951 | Jan. 1, 1948 | Jan. 1, 1938 |
|---|---|---|---|
| Steel Ingot Capacity (net tons) | 104,147,810 | 93,922,340 | 79,593,404 |
| Hot-Rolled Steel Capacity (net tons) | 83,699,890 | 73,872,430 | 63,652,796 |
| Per Cent to Ingot Capacity | 80.4 | 78.7 | 80.0 |

Products processed cold are not included in the above figures, thus avoiding distortion of finished steel capacity figures for the industry as shown in the summary tables on this and the opposite page.

Rise in hot-rolling capacity was not universal among all products, however. In six categories there was a decline between 1948 and 1951. They are: Hot-rolled bars, other than concrete reinforcement bars; light structural shapes; heavy railroad rails; splice bars and tie plates; ingots, blooms and billets for forging; and miscellaneous hot-rolled products.

Biggest tonnage increase is in hot-rolled sheet capacity. That jumped from 18,947,570 net tons on Jan. 1, 1948, to 24,890,230 tons on Jan. 1, 1951. Hot-rolled strip capacity rose in the same period from 3,527,590 net tons to 4,907,550 tons. Those increases reflected the heavy demand for consumer goods and the trend toward the adoption of stampings wherever possible.

Capacity to produce strip for cold reduced black plate and tin plate also rose. It went from 4,114,-300 net tons on Jan. 1, 1948, to 4,694,530 tons on Jan. 1, 1951.

The swing from hot-dipped tin plate to electrolytic tin plate as a means of conserving tin is reflected

## NISHED STEEL PRODUCT CAPACITIES BY COMPANIES

### Structural Shapes, Rolled Steel Piling and Plates

| | ANNUAL CAPACITY (N. T.) Structural Shapes (Heavy) | Rolled Steel Piling | Plates Sheared | Plates Universal |
|---|---|---|---|---|
| npanies: | | | | |
| an Wood Steel Company | ..... | ..... | 145,600 | ..... |
| egheny Ludlum Steel Corporation | ..... | ..... | 6,000 | ..... |
| mco Steel Corporation: | | | | |
| heffield Steel Corporation | 54,100 | ..... | 108,200 | ..... |
| rium Steel Corporation: | | | | |
| entral Iron and Steel Company | ..... | ..... | 182,400 | 105,600 |
| hoenix Iron & Steel Company | 259,000 | ..... | ..... | ..... |
| TOTAL | 259,000 | ..... | 182,400 | 105,600 |
| thlehem Steel Corporation: | | | | |
| ethlehem Steel Company | 1,823,000 | 164,000 | 672,000 | 348,000 |
| ethlehem Pacific Coast Steel Corporation | 98,000 | ..... | ..... | 12,000 |
| TOTAL | 1,921,000 | 164,000 | 672,000 | 360,000 |
| g-Warner Corporation | ..... | ..... | 25,000 | ..... |
| ers Company, A. M. | ..... | ..... | 30,000 | 70,000 |
| orado Fuel and Iron Corporation | 52,000 | ..... | 7,000 | ..... |
| aymont Steel Corporation | ..... | ..... | 300,000 | ..... |
| TOTAL | 52,000 | ..... | 307,000 | ..... |
| icible Steel Company of America | ..... | ..... | 42,000 | 12,000 |
| ston & Sons, Inc., Henry | ..... | ..... | 5,600 | ..... |
| pire Steel Company | ..... | ..... | ..... | 24,000 |
| nite City Steel Co. | ..... | ..... | 120,000 | ..... |
| and Steel Company | 250,000 | 5,000 | 385,000 | 85,000 |
| ernational Harvester Company | 22,000 | ..... | ..... | 60,000 |
| sop Steel Company | ..... | ..... | 9,000 | ..... |
| es & Laughlin Steel Corporation | 110,000 | ..... | 140,800 | ..... |
| ser Steel Corporation | 60,000 | ..... | 216,000 | 25,000 |
| ens Steel Company | ..... | ..... | 486,000 | ..... |
| ional Steel Corporation: | | | | |
| eirton Steel Company | (a) 200,000 | ..... | ..... | ..... |
| ublic Steel Corporation | ..... | ..... | (b) | ..... |
| ron Steel Corporation | ..... | ..... | ..... | 60,000 |
| onds Saw and Steel Company | ..... | ..... | 400 | ..... |
| ted States Steel Corporation: | | | | |
| lumbia Steel Company | 8,900 | ..... | ..... | ..... |
| neva Steel Company | 352,000 | ..... | 528,000 | ..... |
| nnessee Coal, Iron and Railroad Co. | 180,000 | ..... | 400,000 | 18,000 |
| ited States Steel Company | 2,370,150 | 113,300 | 2,708,550 | 570,330 |
| TOTAL | 2,911,050 | 113,300 | 3,636,550 | 588,330 |
| t Virginia Steel and Mfg. Co. | 5,000 | ..... | ..... | ..... |
| versal-Cyclops Steel Corporation | ..... | ..... | 17,100 | ..... |
| eeling Steel Corporation | ..... | ..... | 252,000 | ..... |
| ungstown Sheet and Tube Company | 11,000 | ..... | 72,000 | 12,000 |
| GRAND TOTAL | 5,855,150 | 282,300 | 6,858,650 | 1,401,930 |

(a) Includes steel piling and tie plates. (b) Included in hot rolled sheet capacity.

## Ordinary and Chemically Treated Black Plate, Hot Dipped Tin and Terne Plate, and Electrolytic Tin Plate

| | ANNUAL CAPACITY (N. T.) | | | |
|---|---|---|---|---|
| | Ordinary black plate | Chemically treated black plate | Hot dipped tin and terne plate | Electrolytic tin plate |
| Companies: | | | | |
| Bethlehem Steel Corporation: | | | | |
| Bethlehem Steel Company | ..... | 154,000 | 648,000 | 540,000 |
| Crown Cork & Seal Company, Inc. | ..... | ..... | 32,400 | 144,000 |
| Granite City Steel Company | 12,000 | ..... | ..... | 75,000 |
| Inland Steel Company | ..... | ..... | 145,000 | 180,000 |
| Jones & Laughlin Steel Corporation | 77,000 | ..... | 109,200 | 193,200 |
| National Steel Corporation: | | | | |
| Weirton Steel Company | 50,000 | ..... | * 430,000 | * 600,000 |
| Republic Steel Corporation | ..... | 20,000 | 160,000 | 140,000 |
| United States Steel Corporation: | | | | |
| Columbia Steel Company | 9,160 | ..... | 162,450 | 101,410 |
| Tennessee Coal, Iron and Railroad Co. | ..... | 34,000 | 378,800 | 216,000 |
| United States Steel Company | † 226,000 | ..... | 597,920 | 736,960 |
| TOTAL | 235,160 | 34,000 | 1,139,170 | 1,054,370 |
| Wheeling Steel Corporation | 150,000 | ..... | 315,000 | 110,000 |
| Youngstown Sheet and Tube Company | 30,000 | ..... | 222,000 | 216,000 |
| GRAND TOTAL | 554,160 | 208,000 | 3,200,770 | 3,252,570 |

* The combined capacity for hot dipped and electrolytic tin plate is limited to 960,000 tons.

† Includes capacity of chemically treated black plate.

in the institute's new directory. On Jan. 1, 1948, capacity to produce hot-dipped tin and terne plate exceeded electrolytic tin plate capacity, but by Jan. 1, 1951, electrolytic capacity was the leader. The 1948 tin plate capacities were: Hot-dipped, 3,714,150 net tons; electrolytic, 2,176,100 tons. The 1951 capacities are: Hot-dipped, 3,200,770 tons; electrolytic, 3,252,570 tons.

Growth in size of modern-day structures and the expansion of industrial plants under the defense program has brought about an increase in capacity for rolling heavy structural shapes. This capacity on Jan. 1, 1951, was 5,855,150 net tons, compared with 5,236,930 tons on Jan. 1, 1948. Meanwhile, capacity for rolling light structurals declined from 1,058,470 net tons to 912,360 tons.

Increase in demand for plates for national defense and defense-supporting programs has helped bring an increase in plate capacity. Sheared plate capacity on Jan. 1, 1951, was 6,858,650 net tons, compared with 5,811,400 tons on Jan. 1, 1948. Universal plate capacity on Jan. 1, 1951, was 1,401,930 net tons, compared with 1,371,300 tons three years earlier.

Reflecting the heavy demand for pipe for gas transmission lines and pipe and tubing for other industries, the capacity to produce steel skelp was boosted from 4,095,900 net tons on Jan. 1, 1948, to 4,956,700 tons on Jan. 1, 1951, and capacity for blanks or pierced billets for seamless tubes was raised from 3,285,040 net tons to 3,938,100 tons.

Interestingly, capacity to produce hot-rolled bars other than concrete reinforcement bars declined from 12,008,260 net tons on Jan. 1, 1948, to 11,935,310 tons on Jan. 1, 1951. Cold-finished bar capacity slid from 3,217,260 net tons to 2,968,395 tons.

The heavy demand in the last several years for consumer products brought about substantial increases in cold-rolling capacities. Cold-rolled sheet capacity on Jan. 1, 1951, was 11,498,330 net tons, compared with 8,758,845 tons three years earlier. Cold-rolled strip capacity climbed from 2,654,940 net tons to 2,825,840 tons.

## Strip (Cold Rolled and Galvanized)

| | ANNUAL CAPACITY (N. T.) | |
|---|---|---|
| | Cold rolled strip | Galvanized strip |
| Companies: | | |
| Acme Steel Company | 435,000 | 117,000 |
| Allegheny Ludlum Steel Corporation | 128,000 | ..... |
| Wallingford Steel Company | 60,000 | ..... |
| TOTAL | 188,000 | ..... |
| Alloy Metal Wire Company, Inc. | 400 | ..... |
| American Shim Steel Company | 18,000 | ..... |
| Atlantic Steel Company | ..... | 13,000 |
| Blair Strip Steel Company | 36,000 | ..... |
| Buffalo Bolt Company | 2,500 | ..... |
| California Cold Rolled Steel Corporation | 24,000 | ..... |
| Carpenter Steel Company | 8,500 | ..... |
| Cleveland Cold Rolling Mills Company | 240 | ..... |
| Cold Metal Products Company | 50,000 | 12,000 |
| Crucible Steel Company of America | 20,000 | ..... |
| Detroit Steel Corporation | 222,000 | ..... |
| Disston & Sons, Inc., Henry | 780 | ..... |
| Elco Steel Products Co. | 36,000 | ..... |
| Elliott Brothers Steel Company | 23,000 | ..... |
| Follansbee Steel Corporation | 54,000 | ..... |
| Greer Steel Company | 74,400 | 12,000 |
| Griffin Manufacturing Company | 36,000 | ..... |
| Hind Steel Company, Inc. | 5,000 | ..... |
| Hofmann Industries Inc. | 24,000 | ..... |
| Igoe Brothers Inc. | 1,000 | ..... |
| Inland Steel Company | 24,000 | ..... |
| Jones & Laughlin Steel Corporation | 30,000 | ..... |
| Kaiser Steel Corporation | 43,000 | ..... |
| McLouth Steel Corporation | 92,400 | ..... |
| National-Standard Company | 6,000 | ..... |
| National Steel Corporation: | | |
| Great Lakes Steel Corporation | 50,000 | ..... |
| Weirton Steel Company | 175,000 | 70,000 |
| TOTAL | 225,000 | 70,000 |
| Newman-Crosby Steel Corporation | 25,000 | ..... |
| Republic Steel Corporation | 175,000 | ..... |
| Rhode Island Steel Corporation | 3,000 | ..... |
| Roebling's Sons Company, John A. | 28,000 | 10,000 |
| Rome Strip Steel Company, Inc. | 20,000 | ..... |
| Sharon Steel Corporation | 108,000 | 45,000 |
| Brainard Steel Company | 25,000 | 15,000 |
| Detroit Tube & Steel Company | 80,000 | ..... |
| TOTAL | 213,000 | 60,000 |
| Simonds Saw & Steel Company | 200 | ..... |
| Stanley Works | 126,000 | ..... |
| Superior Steel Corporation | 80,000 | ..... |
| Thomas Steel Company | 120,000 | 36,000 |
| Thompson Wire Company | 60,000 | ..... |
| United States Steel Corporation: | | |
| American Steel and Wire Company | 238,820 | 36,810 |
| Universal-Cyclops Steel Corporation | 15,000 | ..... |
| Wallace Barnes Company | 12,000 | ..... |
| Washburn Wire Company | 23,100 | ..... |
| Worcester Pressed Steel Company | 7,500 | ..... |
| GRAND TOTAL | 2,825,840 | 366,810 |

## Sheets (Cold Rolled, Galvanized, and Long Terne)

| | ANNUAL CAPACITY (N. T.) | | |
|---|---|---|---|
| | Cold rolled sheets | Galvanized sheets | Long terne sheets |
| Companies: | | | |
| Allegheny Ludlum Steel Corporation | 15,000 | ..... | ..... |
| Armco Steel Corporation | 1,096,000 | 359,000 | 48,000 |
| Bethlehem Steel Corporation: | | | |
| Bethlehem Steel Company | 1,440,000 | 228,000 | ..... |
| Continental Steel Corporation | ..... | 110,000 | ..... |
| Crucible Steel Company of America | 18,600 | ..... | ..... |
| Eastern Stainless Steel Corporation | 18,000 | ..... | ..... |
| Empire Steel Corporation | ..... | ..... | 16,000 |
| Follansbee Steel Corporation | 154,800 | ..... | 31,200 |
| Ford Motor Company | 485,000 | ..... | ..... |
| Granite City Steel Company | 300,000 | 120,000 | ..... |
| Inland Steel Company | 800,000 | 86,400 | ..... |
| Jones & Laughlin Steel Corporation | 840,000 | ..... | ..... |
| National Steel Corporation: | | | |
| Great Lakes Steel Corporation | 1,800,000 | ..... | ..... |
| Weirton Steel Company | 750,000 | 220,000 | 30,000 |
| TOTAL | 2,550,000 | 220,000 | 30,000 |
| Newport Steel Corporation | ..... | 96,000 | 16,000 |
| Parkersburg Steel Company | ..... | 114,000 | 27,500 |
| Reeves Steel and Manufacturing Company | ..... | 42,000 | ..... |
| Republic Steel Corporation | 1,170,000 | 440,000 | ..... |
| Sharon Steel Corporation: | | | |
| Niles Rolling Mill Company | ..... | 51,600 | 15,600 |
| Sheet Steel Mills, Inc. | ..... | 55,000 | ..... |
| United States Steel Corporation: | | | |
| Columbia Steel Company | 169,020 | 131,600 | ..... |
| Tennessee Coal, Iron and Railroad Co. | ..... | 316,200 | ..... |
| United States Steel Company | 1,355,910 | 367,660 | 65,800 |
| TOTAL | 1,524,930 | 815,460 | 65,800 |
| Washington Steel Corporation | 18,000 | ..... | ..... |
| Wheeling Steel Corporation | 480,000 | 390,000 | 24,000 |
| Whitney-Apollo Corporation | ..... | 56,000 | ..... |
| Youngstown Sheet and Tube Company | 588,000 | ..... | ..... |
| GRAND TOTAL | 11,498,330 | 3,183,460 | 274,100 |

## Hot Rolled Sheets

| | Annual capacity (N. T.) |
|---|---|
| Companies: | |
| Alan Wood Steel Company | 30,000 |
| Allegheny Ludlum Steel Corporation | 120,000 |
| Armco Steel Corporation | 1,984,000 |
| Sheffield Steel Corporation | 9,100 |
| TOTAL | 1,993,100 |
| Bethlehem Steel Corporation: | |
| Bethlehem Steel Company | 3,792,000 |
| Borg-Warner Corporation | 125,000 |
| Continental Steel Corporation | 130,000 |
| Crucible Steel Company of America | 42,200 |
| Disston & Sons Inc., Henry | 10,600 |
| Eastern Stainless Steel Corporation | 18,000 |
| Empire Steel Company | 120,000 |
| Ford Motor Company | 975,000 |
| Inland Steel Company | 1,400,000 |
| International Harvester Company | 18,000 |
| Jessop Steel Company | 5,000 |
| Jones & Laughlin Steel Corporation | 1,524,400 |
| Kaiser Steel Corporation | 43,000 |
| McLouth Steel Corporation | 471,900 |
| Mahoning Valley Steel Company | 120,000 |
| National Steel Corporation: | |
| Great Lakes Steel Corporation | 2,260,000 |
| Weirton Steel Company | (a) 2,075,000 |
| TOTAL | 4,335,000 |
| Newport Steel Corporation | 180,000 |
| Parkersburg Steel Company | 36,000 |
| Superior Sheet Steel Division | 140,000 |
| TOTAL | 176,000 |
| Reeves Steel and Manufacturing Co. | 75,000 |
| Republic Steel Corporation | (b) 1,737,000 |
| Sharon Steel Corporation: | |
| Niles Rolling Mill Company | 150,000 |
| Sheet Steel Mills, Inc. | 55,000 |
| Simonds Saw and Steel Company | 4,000 |
| United States Steel Corporation: | |
| Columbia Steel Company | 317,040 |
| Tennessee Coal, Iron and Railroad Co. | 628,000 |
| United States Steel Company | 4,204,770 |
| TOTAL | 5,149,810 |
| Universal-Cyclops Steel Corporation | 13,100 |
| Vanadium-Alloys Steel Company: | |
| Colonial Steel Company | 1,120 |
| Wheeling Steel Corporation | 903,000 |
| Whitney Apollo Corporation (The) | 132,000 |
| Youngstown Sheet and Tube Company | 1,041,000 |
| GRAND TOTAL | 24,890,230 |

(a) Includes hot rolled strip.
(b) Includes plates.

## Hot Rolled Strip

| | Annual capacity (N. T.) |
|---|---|
| Companies: | |
| Acme Steel Company | 545,000 |
| Alan Wood Steel Company | 218,000 |
| Allegheny Ludlum Steel Corporation | 150,000 |
| Atlantic Steel Company | 32,000 |
| Boiardi Steel Corporation | 30,000 |
| Borg-Warner Corporation | 3,000 |
| Buffalo Bolt Company | 600 |
| Byers Company, A. M. | 60,000 |
| Colorado Fuel and Iron Corporation | 600 |
| Connors Steel Company | 21,600 |
| Inland Steel Company | 15,000 |
| International Harvester Company | 35,000 |
| Kaiser Steel Corporation | 62,000 |
| Knoxville Iron Company | 1,500 |
| Laclede Steel Company | 78,000 |
| McLouth Steel Corporation | 80,400 |
| National Steel Corporation: | |
| Great Lakes Steel Corporation | 375,000 |
| Newport Steel Corporation | 300,000 |
| Republic Steel Corporation | 474,000 |
| Roebling's Sons Company (John A.) | 12,000 |
| Sharon Steel Corporation | 585,000 |
| Simonds Saw and Steel Company | 780 |
| Stanley Works | 130,000 |
| Superior Steel Corporation | 115,000 |
| United States Steel Corporation: | |
| American Steel and Wire Company | 82,120 |
| Columbia Steel Company | 16,020 |
| Geneva Steel Company | 715,000 |
| Tennessee Coal, Iron and Railroad Co. | 58,100 |
| United States Steel Company | 638,630 |
| TOTAL | 1,509,870 |
| Washburn Wire Company | 61,200 |
| Youngstown Sheet and Tube Company | 12,000 |
| GRAND TOTAL | 4,907,550 |

## Miscellaneous Finished Hot Rolled Products

| | Annual capacity (N. T.) |
|---|---|
| Companies: | |
| American Locomotive Company | 123,000 |
| Baldwin-Lima-Hamilton Corporation | 44,000 |
| Colorado Fuel and Iron Corporation | 30,800 |
| Edgewater Steel Company | 46,960 |
| Midvale Company | 60,000 |
| TOTAL | 304,760 |

## Rails, Joint or Splice Bars and Tie Plates, Track Spikes and Wheels and Axles (Rolled)

| | ANNUAL CAPACITY (N. T.) | | | | |
|---|---|---|---|---|---|
| | Rails | | Joint or splice bars and tie plates | Track spikes | Wheels and axles (Rolled) |
| | 60 lbs. or less per yard | Standard (over 60 lbs. per yard) | | | |
| Companies: | | | | | |
| Ames & Company, Inc. W. | ..... | ..... | ..... | 18,000 | ..... |
| Armco Steel Corporation | ..... | ..... | ..... | ..... | 54,000 |
| Sheffield Steel Corporation | ..... | ..... | ..... | 24,000 | ..... |
| TOTAL | ..... | ..... | ..... | 24,000 | 54,000 |
| Baldwin-Lima-Hamilton Corporation | ..... | ..... | ..... | ..... | 47,750 |
| Bethlehem Steel Corporation: | | | | | |
| Bethlehem Steel Company | 36,000 | 372,000 | 145,000 | 48,000 | 150,000 |
| Bethlehem Pacific Coast Steel Corporation | ..... | ..... | 12,000 | 6,000 | ..... |
| TOTAL | 36,000 | 372,000 | 157,000 | 54,000 | 150,000 |
| Colorado Fuel and Iron Corporation | 9,600 | 420,000 | 144,000 | 30,000 | ..... |
| Edgewater Steel Company | ..... | ..... | ..... | ..... | 35,000 |
| Inland Steel Company | ..... | 135,000 | 50,000 | 24,000 | ..... |
| Jones & Laughlin Steel Corporation | ..... | ..... | ..... | 36,000 | ..... |
| National Steel Corporation: | | | | | |
| Weirton Steel Company | ..... | ..... | (a) | 6,000 | ..... |
| Poor & Company | ..... | ..... | 12,000 | ..... | ..... |
| Republic Steel Corporation | ..... | ..... | ..... | 35,000 | ..... |
| Sweet's Steel Company | 57,000 | ..... | (b) | ..... | ..... |
| Tredegar Company | ..... | ..... | 20,000 | 10,000 | ..... |
| United States Steel Corporation: | | | | | |
| Columbia Steel Company | ..... | ..... | 73,870 | ..... | ..... |
| Tennessee Coal, Iron and Railroad Co. | 3,600 | 470,000 | 166,600 | 30,000 | ..... |
| United States Steel Company | 132,200 | 986,600 | 279,300 | ..... | 159,600 |
| TOTAL | 135,800 | 1,456,600 | 519,770 | 30,000 | 159,600 |
| West Virginia Steel and Manufacturing Co. | 85,000 | ..... | 10,000 | ..... | ..... |
| Youngstown Sheet and Tube Company | ..... | ..... | ..... | 28,800 | ..... |
| GRAND TOTAL | 323,400 | 2,383,600 | 912,770 | 295,800 | 446,350 |

(a) Included in capacity of heavy structural shapes. (b) Included in capacity of hot rolled bars.

## Pipe and Tubes

| | ANNUAL CAPACITY (N. T.) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Buttweld | Lapweld | Seamless | Electric weld | Spiral weld | Gasweld | Galvanized | Pressure tubing | Mechanical tubing |
| Companies: | | | | | | | | | |
| Agaloy Tubing Company | ..... | ..... | 800 | 200 | ..... | ..... | ..... | ..... | 1,000 |
| Allegheny Ludlum Steel Corp. | ..... | ..... | 1,800 | ..... | ..... | ..... | ..... | ..... | ..... |
| American Metal Products, Inc. | ..... | ..... | ..... | 30,000 | ..... | ..... | ..... | ..... | 30,000 |
| American Pipe & Steel Corp. | ..... | ..... | ..... | ..... | ..... | 13,000 | ..... | ..... | ..... |
| Armco Steel Corporation | ..... | ..... | ..... | 24,000 | 63,000 | ..... | ..... | ..... | 24,000 |
| Babcock & Wilcox Tube Co. | ..... | ..... | 143,000 | 39,400 | ..... | ..... | ..... | 67,200 | 115,200 |
| Basalt Rock Company | ..... | ..... | ..... | 358,000 | ..... | ..... | ..... | ..... | ..... |
| Bethlehem Steel Corporation: | | | | | | | | | |
| Bethlehem Steel Company | 294,000 | 84,000 | ..... | ..... | ..... | ..... | 140,000 | ..... | ..... |
| Bundy Tubing Company | ..... | ..... | ..... | 37,200 | ..... | ..... | ..... | 24,000 | 13,200 |
| Byers Company, A. M. | 47,000 | 90,000 | ..... | ..... | ..... | ..... | 84,000 | ..... | ..... |
| Central Steel Tube Co. | ..... | ..... | ..... | 4,500 | ..... | ..... | ..... | ..... | ..... |
| Colorado Fuel & Iron Corp.: | | | | | | | | | |
| Claymont Steel Corp. | ..... | ..... | ..... | 100,000 | ..... | ..... | ..... | ..... | ..... |
| Columbia Steel & Shafting Co. | ..... | ..... | 15,000 | ..... | ..... | ..... | ..... | ..... | ..... |
| Electroweld Steel Corporation | ..... | ..... | ..... | 7,000 | ..... | ..... | ..... | 2,000 | 5,000 |
| Formed Tubes, Inc. | ..... | ..... | ..... | 12,000 | ..... | ..... | ..... | ..... | 12,000 |
| Fretz-Moon Tube Co., Inc. | 60,000 | ..... | ..... | ..... | ..... | ..... | 30,000 | ..... | ..... |
| Globe Steel Tubes Company | ..... | ..... | 72,000 | 1,800 | ..... | ..... | ..... | 24,000 | 49,800 |
| Hofmann Industries, Inc. | ..... | ..... | ..... | 600 | ..... | ..... | ..... | ..... | 600 |
| Ivins Steel Tube Works, Inc. | ..... | ..... | 1,300 | ..... | ..... | ..... | ..... | ..... | ..... |
| Jones & Laughlin Steel Corp. | 190,000 | 120,000 | 420,000 | 45,000 | ..... | ..... | 84,000 | ..... | 55,000 |
| Kaiser Steel Corp. | 135,000 | ..... | ..... | 208,000 | ..... | ..... | 80,000 | ..... | ..... |
| Kane Boiler Works, Inc. E. | ..... | ..... | ..... | 18,000 | ..... | ..... | ..... | ..... | ..... |
| Laclede Steel Company | 60,000 | ..... | ..... | 24,000 | ..... | 5,000 | 35,000 | ..... | 30,000 |
| Mark & Company, Clayton | ..... | ..... | ..... | 24,000 | ..... | ..... | 8,400 | ..... | 24,000 |
| Master Tank & Welding, Ltd. | ..... | ..... | ..... | 100,000 | ..... | ..... | ..... | ..... | ..... |
| Mercer Tube & Mfg. Company | 100,000 | ..... | ..... | ..... | ..... | ..... | 70,000 | ..... | ..... |
| Michigan Seamless Tube Co. | ..... | ..... | 19,000 | ..... | ..... | ..... | ..... | ..... | 19,000 |
| National Supply Company | 222,000 | 45,000 | 336,000 | 6,000 | ..... | ..... | 93,000 | ..... | 10,000 |
| Naylor Pipe Company | ..... | ..... | ..... | ..... | 18,000 | ..... | ..... | ..... | ..... |
| Newport Steel Corporation | ..... | ..... | ..... | 90,000 | ..... | ..... | ..... | ..... | ..... |
| Nikoh Tube Company | ..... | ..... | ..... | 200,000 | ..... | ..... | ..... | ..... | 80,000 |
| Ohio Seamless Tube Company | ..... | ..... | 33,600 | 8,400 | ..... | ..... | ..... | ..... | 42,000 |
| Pacific Tube Company | ..... | ..... | 7,500 | 10,000 | ..... | ..... | ..... | 4,000 | 13,500 |
| Pittsburgh Steel Company | ..... | ..... | 360,000 | ..... | ..... | ..... | ..... | 72,000 | 60,000 |
| Pittsburgh Tube Company | 45,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 45,000 |
| Republic Steel Corporation | 250,000 | ..... | ..... | 767,000 | ..... | ..... | 120,000 | 61,000 | 84,000 |
| Service Steel Company | 2,000 | ..... | 1,500 | ..... | ..... | ..... | ..... | ..... | ..... |
| Sharon Steel Corporation: | | | | | | | | | |
| Brainard Steel Company | ..... | ..... | ..... | 64,800 | ..... | ..... | ..... | ..... | ..... |
| Sharon Tube Company | 9,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Shenango Tube Company | ..... | ..... | ..... | 16,000 | ..... | ..... | ..... | ..... | 16,000 |
| Smith Corporation, A. O. | ..... | ..... | ..... | 620,000 | ..... | ..... | ..... | ..... | ..... |
| Smith Corp. of Texas, A. O. | ..... | ..... | ..... | 480,000 | ..... | ..... | ..... | ..... | ..... |
| Simmons Company | 3,100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| South Chester Tube Company | ..... | 108,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Southeastern Metals Co., Inc. | ..... | ..... | ..... | 15,000 | ..... | ..... | ..... | ..... | 15,000 |
| Southern Pipe & Casing Company | ..... | ..... | ..... | 34,000 | ..... | ..... | ..... | ..... | ..... |
| Standard Tube Company | ..... | ..... | ..... | 60,000 | ..... | ..... | ..... | ..... | 45,000 |
| Superior Tube Company | ..... | ..... | 1,500 | ..... | ..... | ..... | ..... | ..... | ..... |
| Taylor Forge & Pipe Works | ..... | ..... | ..... | 12,000 | 72,000 | ..... | ..... | ..... | ..... |
| Timken Roller Bearing Company | ..... | ..... | 210,000 | ..... | ..... | ..... | ..... | ..... | 210,000 |
| Toledo Steel Tube Company | ..... | ..... | ..... | 15,000 | ..... | ..... | ..... | ..... | 15,000 |
| Trent Tube Company | ..... | ..... | ..... | 2,000 | ..... | ..... | ..... | ..... | ..... |
| Tube Reducing Corporation | ..... | ..... | 30,000 | ..... | ..... | ..... | ..... | ..... | 30,000 |
| United States Steel Corporation: | | | | | | | | | |
| Consolidated Western Steel Corp. | ..... | ..... | ..... | 1,190,500 | ..... | ..... | ..... | ..... | ..... |
| National Tube Company | 503,000 | ..... | 1,845,000 | 141,000 | ..... | ..... | 179,400 | 105,900 | 214,200 |
| TOTAL | 503,000 | ..... | 1,845,000 | 1,331,500 | ..... | ..... | 179,400 | 105,900 | 214,200 |
| Vacuum Melt, Inc. | ..... | ..... | 900 | ..... | ..... | ..... | ..... | ..... | ..... |
| Wheatland Tube Company | 121,470 | ..... | ..... | 8,300 | ..... | ..... | 83,000 | ..... | ..... |
| Wheeling Steel Corporation | 300,000 | ..... | ..... | ..... | ..... | ..... | 120,000 | ..... | ..... |
| Youngstown Sheet & Tube Co. | 528,000 | ..... | 462,000 | 354,000 | ..... | ..... | 252,000 | ..... | 12,000 |
| TOTAL | 2,869,570 | 447,000 | 3,960,900 | 5,127,700 | 153,000 | 18,000 | 1,378,800 | 360,100 | 1,270,500 |

## Hot Rolled Bars and Bar Size Shapes

| | ANNUAL CAPACITY (N. T.) | | | |
|---|---|---|---|---|
| | Other than Concrete Reinforcement | Concrete Reinforcement | | Bar Size Shapes |
| | | New Billet | Rerolled | |
| Companies: | | | | |
| Allegheny Ludlum Steel Corporation | 34,800 | ..... | ..... | ..... |
| American Swedo Iron Corporation | 12,000 | ..... | ..... | ..... |
| Ames & Company, W. | 35,000 | ..... | ..... | (a) |
| Armco Steel Corporation | 19,000 | ..... | ..... | ..... |
| Sheffield Steel Corporation | 114,000 | 151,700 | 25,000 | 77,700 |
| TOTAL | 133,000 | 151,700 | 25,000 | 77,700 |
| Atlantic Steel Company | 20,000 | 20,000 | ..... | 18,000 |
| Bethlehem Steel Corporation: | | | | |
| Bethlehem Steel Company | 1,462,000 | 300,000 | ..... | 168,000 |
| Bethlehem Pacific Coast Steel Corporation | 214,000 | 161,000 | ..... | 62,000 |
| TOTAL | 1,676,000 | 461,000 | ..... | 230,000 |
| Boiardi Steel Corporation | 40,000 | ..... | 10,000 | (a) |
| Borg-Warner Corporation | 92,000 | 25,000 | 20,000 | (a) |
| Braeburn Alloy Steel Corporation | 3,200 | ..... | ..... | ..... |
| Buffalo Bolt Company | 40,500 | ..... | ..... | ..... |
| Buffalo Steel Company | 55,000 | 25,000 | ..... | ..... |
| Byers Company, A. M. | 50,000 | ..... | ..... | ..... |
| Carpenter Steel Company | 24,600 | ..... | ..... | ..... |
| Colorado Fuel and Iron Corporation | 74,000 | 40,000 | ..... | 20,000 |
| Columbia Tool Steel Company | 1,800 | ..... | ..... | ..... |
| Connors Steel Company | 7,400 | 10,000 | 55,000 | ..... |
| Copperweld Steel Company | 320,000 | ..... | ..... | ..... |
| Crucible Steel Company of America | 447,100 | ..... | ..... | ..... |
| Disston & Sons, Inc., Henry | 22,400 | ..... | ..... | ..... |
| Falls Hollow Staybolt Company | 8,000 | ..... | ..... | ..... |
| Firth Sterling Steel and Carbide Corporation | 11,550 | ..... | ..... | ..... |
| Ford Motor Company | 145,000 | ..... | ..... | ..... |
| Heller Brothers Company | 18,000 | ..... | ..... | ..... |
| Highland Iron & Steel, Inc. | 45,000 | ..... | ..... | ..... |
| Inland Steel Company | 345,000 | 40,000 | 20,000 | 50,000 |
| International Harvester Company | 503,800 | ..... | ..... | (a) |
| Jersey Shore Steel Company | 30,000 | ..... | ..... | (a) |
| Jessop Steel Company | 6,000 | ..... | ..... | ..... |
| Jones & Laughlin Steel Corporation | 485,000 | 2,000 | 10,000 | 50,000 |
| Joslyn Manufacturing & Supply Company | 15,000 | ..... | ..... | 1,000 |
| Judson Steel Corporation | 14,000 | 40,000 | ..... | ..... |
| Kaiser Steel Corporation | 46,000 | ..... | ..... | (a) |
| Knoxville Iron Company | 51,500 | 23,100 | ..... | 13,900 |
| Laclede Steel Company | 24,000 | 6,000 | 107,000 | 24,000 |
| Latrobe Electric Steel Company | 5,500 | ..... | ..... | ..... |
| Lockhart Iron and Steel Company | 60,000 | ..... | ..... | (a) |
| Missouri Rolling Mill Corporation | 16,500 | ..... | 53,500 | ..... |
| National Steel Corporation: | | | | |
| Great Lakes Steel Corporation | 60,000 | ..... | ..... | ..... |
| Northern Steel, Inc. | ..... | ..... | 12,000 | 3,000 |
| Northwest Steel Rolling Mills, Inc. | 17,000 | 8,000 | ..... | ..... |
| Oregon Steel Mills | 100,000 | ..... | ..... | (a) |
| Pacific States Steel Corporation | 85,000 | 30,000 | ..... | 40,000 |
| Phoenix Manufacturing Company | 15,000 | ..... | ..... | ..... |
| Pollak Steel Company | 54,000 | ..... | 36,000 | ..... |
| Republic Steel Corporation | (b) 3,156,000 | (a) | ..... | ..... |
| Rotary Electric Steel Company | 180,000 | ..... | ..... | ..... |
| Simmons Company | 33,000 | ..... | 3,000 | (a) |
| Simonds Saw and Steel Company | 6,000 | ..... | ..... | ..... |
| Sweet's Steel Company | (c) 47,000 | ..... | (a) | ..... |
| Texas Steel Company | 26,000 | ..... | 42,000 | ..... |
| Timken Roller Bearing Company | 93,000 | ..... | ..... | ..... |
| Tredegar Company | 22,000 | 5,000 | ..... | ..... |
| United States Steel Corporation: | | | | |
| American Steel and Wire Company | 102,500 | ..... | ..... | ..... |
| Columbia Steel Company | 68,940 | 126,260 | ..... | 16,760 |
| Tennessee Coal, Iron and Railroad Co. | 158,400 | 67,400 | ..... | (a) |
| United States Steel Company | 2,452,200 | 168,100 | ..... | 331,000 |
| TOTAL | 2,782,040 | 361,760 | ..... | 347,760 |
| Universal-Cyclops Steel Corporation | 15,400 | ..... | ..... | ..... |
| Vanadium-Alloys Steel Company | 6,000 | ..... | ..... | ..... |
| Colonial Steel Company | 6,720 | ..... | ..... | ..... |
| TOTAL | 12,720 | ..... | ..... | ..... |
| Vulcan Crucible Steel Company | 3,000 | ..... | ..... | ..... |
| West Virginia Steel and Manufacturing Co. | 10,000 | ..... | 10,000 | 20,000 |
| Youngstown Sheet and Tube Company | 342,000 | 6,000 | ..... | 17,000 |
| GRAND TOTAL | 11,977,810 | 1,254,560 | 403,500 | 912,360 |

(a) Included in capacity of bars—other than concrete reinforcement. (b) Includes concrete reinforcement bars and tube rounds.
(c) Includes splice bars, tie plates and rerolled concrete reinforcement bars.

## Wire Rods

| | Annual capacity (N. T.) |
|---|---|
| Companies: | |
| American Chain & Cable Company, Inc. | 175,000 |
| Armco Steel Corporation | 18,800 |
| Sheffield Steel Corporation | 234,600 |
| TOTAL | 253,400 |
| Atlantic Steel Company | 55,000 |
| Bethlehem Steel Corporation: | |
| Bethlehem Steel Company | 731,000 |
| Bethlehem Pacific Coast Steel Corporation | 63,000 |
| TOTAL | 794,000 |
| Buffalo Bolt Company | 24,500 |
| Colorado Fuel and Iron Corporation | 364,000 |
| Continental Steel Corporation | 155,000 |
| Copperweld Steel Company | 55,000 |
| Crucible Steel Company of America | 14,800 |
| Detroit Steel Corporation | 180,000 |
| Driver Company, Wilbur B. | 6,000 |
| International Harvester Company | 2,500 |
| Jones & Laughlin Steel Corporation | 264,000 |
| Joslyn Manufacturing & Supply Co. | 2,000 |
| Keystone Steel & Wire Company | 282,000 |
| Laclede Steel Company | 89,000 |
| Northwestern Steel & Wire Company | 218,000 |
| Pittsburgh Steel Company | 310,000 |
| Republic Steel Corporation | 375,000 |
| Roebling's Sons Company (John A.) | 150,000 |
| United States Steel Corporation: | |
| American Steel and Wire Company | 1,997,020 |
| Columbia Steel Company | 219,230 |
| Tennessee Coal, Iron and Railroad Co. | 169,000 |
| TOTAL | 2,385,250 |
| Universal-Cyclops Steel Corporation | 6,700 |
| Washburn Wire Company | 61,000 |
| Wickwire Brothers, Inc. | 35,000 |
| Youngstown Sheet and Tube Company | 103,200 |
| GRAND TOTAL | 6,360,350 |

## Cold Finished Bars

| | Annual capacity (N. T.) |
|---|---|
| Companies: | |
| Allegheny Ludlum Steel Corporation | *22,500 |
| Anchor Drawn Steel Company | 2,850 |
| Armco Steel Corporation | 34,600 |
| Bethlehem Steel Company | 53,000 |
| Bliss & Laughlin, Inc. | 354,000 |
| Buffalo Bolt Company | 3,200 |
| Carpenter Steel Company | 22,200 |
| Columbia Steel & Shafting Company | 136,000 |
| Compressed Steel Shafting Company | 20,000 |
| Copperweld Steel Company | 50,140 |
| Crucible Steel Company of America | 71,400 |
| Cumberland Steel Company | 40,000 |
| Cuyahoga Steel & Wire Company | 15,000 |
| Firth Sterling Steel & Carbide Corporation | 3,775 |
| Fitzsimons Steel Company | 50,000 |
| Fort Howard Steel & Wire | 12,000 |
| International Harvester Company | 30,000 |
| Jones & Laughlin Steel Corporation | 420,000 |
| Joslyn Manufacturing & Supply Company | 28,000 |
| Keystone Drawn Steel Company | 32,600 |
| Kidd Drawn Steel Company | 3,000 |
| La Salle Steel Company | 248,000 |
| Latrobe Electric Steel Company | 1,000 |
| Medart Company | 4,000 |
| Moltrup Steel Products Company | 72,000 |
| Monarch Steel Company, Inc. | 40,000 |
| Nelsen Steel & Wire Company | 10,000 |
| Pacific Tube Company | 12,000 |
| Pilgrim Drawn Steel Division | 44,000 |
| Pittsburgh Tool Steel Wire Company | 6,500 |
| Precision Drawn Steel Company | 56,000 |
| Republic Steel Corporation | 400,000 |
| Rotary Electric Steel Company | 55,000 |
| Sierra-Drawn Steel Company | 21,600 |
| Superior Drawn Steel Company | 36,000 |
| Timken Roller Bearing Company | 32,000 |
| United States Steel Corporation: | |
| American Steel and Wire Company | 56,030 |
| Universal-Cyclops Steel Company | 7,350 |
| Western Automatic Machine Screw Company | 52,500 |
| Wyckoff Steel Company | 350,150 |
| Youngstown Sheet and Tube Company | 60,000 |
| TOTAL | 2,968,395 |

* Includes capacity of drawn wire.

## Bolts, Nuts, Rivets and Washers

| | Annual capacity (N. T.) |
|---|---|
| Companies: | |
| Ames & Company, Inc., W. | 7,000 |
| Armco Steel Corporation: | |
| Sheffield Steel Corporation | 36,000 |
| Atlantic Steel Company | 5,580 |
| Bethlehem Steel Corporation: | |
| Bethlehem Steel Company | 78,000 |
| Bethlehem Pacific Coast Steel Corporation | 32,000 |
| TOTAL | 110,000 |
| Buffalo Bolt Company | 55,200 |
| Colorado Fuel and Iron Corporation | * |
| Falls Hollow Staybolt Company | 600 |
| Igoe Brothers, Inc. | 700 |
| Republic Steel Corporation | 112,000 |
| United States Steel Corporation: | |
| Tennessee Coal, Iron and Railroad Co. | 21,600 |
| GRAND TOTAL | 348,680 |

* Included in capacity of track spikes.

## Skelp

| | ANNUAL CAPACITY (N. T.) | | |
|---|---|---|---|
| | Steel | Iron | Total |
| Companies: | | | |
| Armco Steel Corporation: | | | |
| Sheffield Steel Corporation | 214,000 | ..... | 214,000 |
| Bethlehem Steel Corporation: | | | |
| Bethlehem Steel Company | 430,000 | ..... | 430,000 |
| Borg-Warner Corporation | 10,000 | ..... | 10,000 |
| Byers Company, A. M. | ..... | 310,000 | 310,000 |
| Jones & Laughlin Steel Corporation | 440,000 | ..... | 440,000 |
| Kaiser Steel Corporation | 436,000 | ..... | 436,000 |
| Laclede Steel Company | 99,500 | ..... | 99,500 |
| Republic Steel Corporation | 1,163,000 | ..... | 1,163,000 |
| United States Steel Corporation: | | | |
| National Tube Company | 509,000 | ..... | 509,000 |
| United States Steel Company | 356,200 | ..... | 356,200 |
| TOTAL | 865,200 | ..... | 865,200 |
| Wheeling Steel Corporation | 411,000 | ..... | 411,000 |
| Youngstown Sheet and Tube Company | 888,000 | ..... | 888,000 |
| GRAND TOTAL | 4,956,700 | 310,000 | 5,266,700 |

## Ingots, Blooms, Billets (Forging)

| | Annual capacity (N. T.) |
|---|---|
| Companies: | |
| Alan Wood Steel Company | 37,500 |
| Allegheny Ludlum Steel Corporation | 3,850 |
| Armco Steel Corporation | 2,140 |
| Sheffield Steel Corporation | 24,800 |
| TOTAL | 26,940 |
| Bethlehem Steel Corporation: | |
| Bethlehem Steel Company | 153,000 |
| Colorado Fuel and Iron Corporation | 500 |
| Crucible Steel Company of America | 22,000 |
| Harrisburg Steel Corporation | 75,000 |
| Inland Steel Company | 20,000 |
| International Harvester Company | 36,000 |
| Timken Roller Bearing Company | 20,000 |
| United States Steel Corporation: | |
| Tennessee Coal, Iron and Railroad Co. | 11,800 |
| United States Steel Company | 262,200 |
| TOTAL | 274,000 |
| Youngstown Sheet and Tube Company | 9,000 |
| GRAND TOTAL | 677,790 |

## Blanks or Pierced Billets for Seamless Tubes

| | Annual capacity (N. T.) |
|---|---|
| Companies: | |
| Babcock & Wilcox Tube Company | 39,600 |
| Crucible Steel Company of America | 90,000 |
| Inland Steel Company | 5,000 |
| Jones & Laughlin Steel Corporation | 420,000 |
| Pittsburgh Steel Company | 350,000 |
| Republic Steel Corporation | (a) |
| Timken Roller Bearing Company | 216,500 |
| United States Steel Corporation: | |
| National Tube Company | 2,250,800 |
| United States Steel Company | 26,200 |
| TOTAL | 2,277,000 |
| Youngstown Sheet and Tube Company | 540,000 |
| GRAND TOTAL | 3,938,100 |

(a) Included in capacity of bars—other than concrete reinforcement.

## Strip for Cold Reduced Black Plate and Tin Plate

| | Annual capacity (N. T.) |
|---|---|
| Companies: | |
| Bethlehem Steel Corporation: | |
| Bethlehem Steel Company | 1,000,000 |
| Granite City Steel Company | 370,000 |
| Inland Steel Company | 245,000 |
| Jones & Laughlin Steel Corporation | 440,000 |
| National Steel Corporation: | |
| Weirton Steel Company | (a) |
| Republic Steel Corporation | 250,000 |
| United States Steel Corporation: | |
| Tennessee Coal, Iron and Railroad Co. | 624,000 |
| United States Steel Company | 1,435,530 |
| TOTAL | 2,059,530 |
| Youngstown Sheet and Tube Company | 330,000 |
| GRAND TOTAL | 4,694,530 |

(a) Included in capacity of hot rolled sheets.

## Wire and Wire Products

| | ANNUAL CAPACITY (N. T.) | | | | | |
|---|---|---|---|---|---|---|
| | Plain wire | Galvanized wire | Nails and staples | Barbed wire | Woven fence | Bale ties |
| Companies: | | | | | | |
| Alloy Metal Wire Company | 3,500 | ..... | ..... | ..... | ..... | ..... |
| American Chain & Cable Co. Inc. | 95,000 | 25,000 | ..... | 600 | ..... | ..... |
| Angell Nail & Chaplet Company | 22,000 | ..... | 18,000 | ..... | ..... | ..... |
| Armco Steel Corporation | 18,000 | ..... | ..... | ..... | ..... | ..... |
| Sheffield Steel Corporation | 238,000 | 68,000 | 63,100 | 24,000 | 30,500 | 10,000 |
| TOTAL | 256,000 | 68,000 | 63,100 | 24,000 | 30,500 | 10,000 |
| Atlantic Steel Company | 87,600 | 31,000 | 43,000 | 13,000 | 35,000 | 6,000 |
| Atlantic Wire Company | 26,000 | 3,500 | ..... | ..... | ..... | ..... |
| Bethlehem Steel Corporation: | | | | | | |
| Bethlehem Steel Company | 563,000 | 132,000 | 85,000 | 22,000 | 18,000 | 15,000 |
| Bethlehem Pacific Coast Steel Corp. | 42,000 | ..... | ..... | ..... | ..... | ..... |
| TOTAL | 605,000 | 132,000 | 85,000 | 22,000 | 18,000 | 15,000 |
| Cedarburg Wire, Wire Nail & Screw Co. | ..... | ..... | 1,350 | ..... | ..... | ..... |
| Buffalo Bolt Company | 24,000 | ..... | ..... | ..... | ..... | ..... |
| Chicago Steel & Wire Company | 23,000 | 2,500 | ..... | ..... | ..... | ..... |
| Colorado Fuel & Iron Corporation | 286,000 | 84,000 | 54,000 | 32,400 | 18,000 | 21,700 |
| California Wire Cloth Corp. | 43,200 | ..... | ..... | 3,700 | ..... | 2,700 |
| TOTAL | 329,200 | 84,000 | 54,000 | 36,100 | 18,000 | 24,400 |
| Continental Steel Corporation | 155,000 | 60,000 | 51,000 | 31,000 | 54,000 | 15,000 |
| Copperweld Steel Company | 55,000 | ..... | ..... | 175 | ..... | ..... |
| Crucible Steel Company of America | 12,000 | ..... | ..... | ..... | ..... | ..... |
| Cuyahoga Steel & Wire Company | 18,000 | ..... | ..... | ..... | ..... | ..... |
| Davis Wire & Cable Corp., K. H. | 12,000 | 1,200 | ..... | ..... | ..... | 600 |
| Detroit Steel Corporation | 144,000 | 12,000 | 21,600 | ..... | ..... | ..... |
| Driscoll Wire Company | 12,000 | 600 | ..... | ..... | ..... | ..... |
| Driver Company, Wilbur B. | 2,000 | ..... | ..... | ..... | ..... | ..... |
| Ford Motor Company | 52,000 | ..... | ..... | ..... | ..... | ..... |
| Igoe Brothers, Inc. | 30,000 | ..... | 2,500 | ..... | ..... | ..... |
| Jones & Laughlin Steel Corporation | 250,000 | 68,400 | 66,000 | 36,000 | 14,400 | ..... |
| Joslyn Manufacturing & Supply Company | 2,000 | ..... | ..... | ..... | ..... | ..... |
| Keystone Steel & Wire Company | 261,000 | 145,000 | 49,000 | 39,000 | 237,000 | ..... |
| Mid-States Steel & Wire Co. | 100,000 | 50,000 | 12,500 | 18,000 | 29,500 | 6,000 |
| TOTAL | 361,000 | 195,000 | 61,500 | 57,000 | 266,500 | 6,000 |
| Laclede Steel Company | 90,000 | 10,000 | ..... | ..... | ..... | ..... |
| Macwhyte Company | 12,000 | 1,000 | ..... | ..... | ..... | ..... |
| Madison Wire Company Inc. | 8,700 | 2,000 | ..... | ..... | ..... | ..... |
| National-Standard Company | 44,200 | 7,300 | ..... | ..... | ..... | ..... |
| New England High Carbon Wire Company | 11,000 | ..... | ..... | ..... | ..... | ..... |
| Nichols Wire & Aluminum Co. | 65,700 | 13,500 | 15,450 | 16,500 | 15,000 | 11,100 |
| Northwestern Steel & Wire Co. | 252,000 | 170,000 | 40,800 | 26,400 | 38,000 | 32,400 |
| Pittsburgh Steel Company | 324,000 | 100,000 | 45,500 | 20,000 | 125,000 | ..... |
| Johnson Steel & Wire Co. | 38,000 | 1,000 | ..... | ..... | ..... | ..... |
| TOTAL | 362,000 | 101,000 | 45,500 | 20,000 | 125,000 | ..... |
| Prentiss & Company, Geo. W. | 5,000 | ..... | ..... | ..... | ..... | ..... |
| Republic Steel Corporation | 348,000 | 105,000 | 113,000 | 35,000 | 41,000 | 13,000 |
| Roebling's Sons Company, John A. | 86,400 | 24,000 | ..... | ..... | ..... | ..... |
| Seneca Wire & Mfg. Company | 15,000 | 1,000 | ..... | ..... | ..... | ..... |
| Sherman Steel & Wire Co. | 1,500 | ..... | ..... | ..... | ..... | ..... |
| Spencer Wire Corporation | 24,000 | ..... | ..... | ..... | ..... | ..... |
| Thompson Wire Company | 12,000 | ..... | ..... | ..... | ..... | ..... |
| Union Wire Rope Corporation | 35,000 | 5,000 | ..... | ..... | ..... | ..... |
| United States Steel Corporation: | | | | | | |
| American Steel & Wire Co. | 1,690,520 | 525,580 | 349,960 | 182,690 | 221,220 | 24,790 |
| Columbia Steel Company | 123,950 | 27,230 | 53,870 | 4,190 | 7,660 | 3,450 |
| Tennessee Coal, Iron and Railroad Company | 170,600 | 75,100 | 87,700 | 28,000 | 81,700 | 7,400 |
| TOTAL | 1,985,070 | 627,910 | 491,530 | 214,880 | 310,580 | 35,640 |
| Universal-Cyclops Steel Corp. | 6,000 | ..... | ..... | ..... | ..... | ..... |
| Washburn Wire Company | 15,000 | ..... | ..... | ..... | ..... | ..... |
| Webb Wire Works | 500 | ..... | ..... | ..... | ..... | ..... |
| Western Auto. Machine Screw Co. | 12,000 | ..... | ..... | ..... | ..... | ..... |
| Wickwire Brothers, Inc. | 35,000 | 7,500 | 7,000 | 300 | ..... | ..... |
| Wilson Steel & Wire Company | 40,000 | 10,000 | 20,000 | ..... | ..... | 4,200 |
| Wright Steel & Wire Co., G. F. | 15,000 | 3,700 | ..... | ..... | ..... | ..... |
| Youngstown Sheet & Tube Co. | 72,000 | 15,000 | ..... | ..... | ..... | ..... |
| GRAND TOTAL | 6,129,370 | 1,787,110 | 1,200,330 | 532,955 | 965,980 | 173,340 |

# Canadian Statistics

NADA'S steel industry continues to expand too. annual capacity to produce steel for ingots and tings rose from 3,694,000 net tons on Jan. 1, 1948, 4,009,500 tons on Jan. 1, 1951, an 8.5 per cent rease.

Just as was the case in the United States, the rise steel producing capacity in Canada was accom- tied by a decrease in the number of open hearths.

At the same time Canada's blast furnace capacity climbed from 2,718,000 net tons to 2,883,950 tons, with the number of furnaces remaining the same, 14. Coke-making capacity rose from 2,530,240 net tons to 2,736,400 tons; number of ovens climbed from 565 to 593.

Paralleling the trend in the United States, Canada's hot-rolling capacity increased more percentagewise

than ingot-making capacity. Hot-rolling capacity rose from 3,107,200 net tons to 3,416,800 tons, a 9.9 per cent expansion.

Capacities for some products declined while those for others increased. Biggest increases are for hot-rolled sheets and for strip for cold-reduced black plate and tin plate. Hot-rolled sheet capacity rose from 202,000 net tons to 333,000 tons, and capacity f strip for cold-reduced black plate and tin pla bounded from 200,000 net tons to 412,000 tons.

Capacity to produce sheared and universal plat dropped from 219,800 net tons to 195,400 tons, whi capacity to roll heavy structurals eased off from 8 450 tons to 79,700 tons.

## BLAST FURNACE CAPACITY

| | PIG IRON | | FERROALLOYS | | Total annual capacity (N. T.) |
|---|---|---|---|---|---|
| | No. of stacks | Annual capacity (N. T.) | No. of stacks | Annual capacity (N. T.) | |
| Algoma Steel Corporation, Limited | 5 | 1,035,000 | ..... | ..... | 1,035,000 |
| Canadian Furnace Co., Limited | 2 | 215,500 | (a) | 7,500 | 223,000 |
| Dominion Foundries and Steel, Limited | 1* | 275,000 | ..... | ..... | 275,000 |
| Dominion Steel & Coal Corporation, Ltd. | 3 | 594,950 | ..... | ..... | 594,950 |
| Steel Company of Canada, Limited | 3 | 756,000 | ..... | ..... | 756,000 |
| TOTAL | 14 | 2,876,450 | (a) | 7,500 | 2,883,950 |

(a) Included under "Pig Iron."
* New blast furnace, construction will be completed mid-year 1951.

## COKE CAPACITY

| | No. of ovens | Annual capacity (N. T.) |
|---|---|---|
| Algoma Steel Corporation, Limited | 244 | 1,230,000 |
| Dominion Foundries and Steel, Limited | 35 | 225,000 |
| Dominion Steel & Coal Corporation, Ltd. | 173 | 431,400 |
| Steel Company of Canada, Limited | 141 | 850,000 |
| TOTAL | 593 | 2,736,400 |

## STEEL INGOT CAPACITY

| | OPEN HEARTH | | BESSEMER | | ELECTRIC | | Total annual capacity (N. T.) |
|---|---|---|---|---|---|---|---|
| | No. | Annual capacity (N. T.) | No. | Annual capacity (N. T.) | No. | Annual capacity (N. T.) | |
| Kinds: | | | | | | | |
| Open hearth—Basic | 46 | 3,305,000 | .. | | | | 3,305,000 |
| Bessemer | .. | ..... | (a)1 | ..... | | | |
| Electric | .. | ..... | .. | ..... | 20 | 704,500 | 704,500 |
| TOTAL | 46 | 3,305,000 | 1 | ..... | 20 | 704,500 | 4,009,500 |
| Steel for castings included above | .. | 35,000 | .. | ..... | .. | (b) | 35,000 |
| Companies: | | | | | | | |
| Algoma Steel Corporation, Ltd. | 12 | 1,000,000 | (a)1 | ..... | .. | ..... | 1,000,000 |
| Atlas Steels, Ltd. | .. | ..... | .. | ..... | 6 | 200,000 | 200,000 |
| Burlington Steel Company, Ltd. | .. | ..... | .. | ..... | 1 | 15,000 | 15,000 |
| Canadian Car & Foundry Company, Ltd. | 3 | 35,000 | .. | ..... | 2 | (b) | 35,000 |
| Canadian Tube & Steel Products, Ltd. | .. | ..... | .. | ..... | 3 | 100,000 | 100,000 |
| Dominion Foundries and Steel Ltd. | 4 | 350,000 | .. | ..... | 5 | 250,000 | 600,000 |
| Dominion Steel & Coal Corp., Ltd. | 10 | 685,000 | .. | ..... | 1 | 28,000 | 713,000 |
| Manitoba Rolling Mill Co., Ltd. | 4 | 80,000 | .. | ..... | 1 | 20,000 | 100,000 |
| Steel Company of Canada, Ltd. | 13 | 1,155,000 | .. | ..... | 1 | 91,500 | 1,246,500 |
| TOTAL | 46 | 3,305,000 | (a)1 | ..... | 20 | 704,500 | 4,009,500 |

(a) Used in melting charge for open hearth furnaces.
(b) Included in capacity shown for open hearth furnaces.

## FINISHED STEEL PRODUCT CAPACITIES OF CANADIAN COMPANIES

| | Annual capacity (N. T.) |
|---|---|
| Products: | |
| Rails—60 lbs. or less per yard | 5,600 |
| " —Over 60 lbs. per yard | 451,300 |
| Long joint or splice bars and tie plates | 80,700 |
| Structural shapes—Heavy | 79,700 |
| " " —Light | 127,100 |
| Steel piling (Rolled) | 16,000 |
| Plates—Sheared | 193,800 |
| Plates—Universal | 1,600 |
| Sheets—Hot rolled | 333,000 |
| Skelp | 58,000 |
| Strip for cold reduced black plate and tin plate | 412,000 |
| Bars—Other than concrete reinforcement | 790,000 |
| " —Concrete reinforcement—New billet | 72,000 |
| " — " " —Rerolled | 21,000 |
| Wire rods | 299,000 |
| Ingots, blooms and billets for forging purposes | 158,500 |
| All other finished hot rolled | 317,500 |
| TOTAL | 3,416,800 |
| Companies: | |
| Algoma Steel Corporation, Limited | 755,700 |
| Atlantic Industries Limited | 22,000 |
| Atlas Steels, Limited | 206,000 |
| Burlington Steel Company, Ltd. | 44,500 |
| Canadian Tube & Steel Products, Limited | 172,000 |
| Dominion Foundries and Steel, Limited | 340,000 |
| Dominion Steel & Coal Corporation, Ltd. | 503,300 |
| Manitoba Rolling Mill Company, Limited | 62,300 |
| Steel Company of Canada, Limited | 1,276,000 |
| Vancouver Rolling Mills, Ltd. | 35,000 |
| TOTAL | 3,416,800 |
| Rails—60 lbs. or less per yard: | |
| Algoma Steel Corporation, Limited | 5,600 |
| Rails—Over 60 lbs. per yard: | |
| Algoma Steel Corporation, Limited | 171,300 |
| Dominion Steel & Coal Corporation, Ltd. | 280,000 |
| TOTAL | 451,300 |

| | Annual capacity (N. T.) |
|---|---|
| Long Joint or Splice Bars and Tie Plates: | |
| Algoma Steel Corporation, Limited | 13,500 |
| Dominion Steel & Coal Corporation, Ltd. | 25,200 |
| Steel Company of Canada, Limited | 42,000 |
| TOTAL | 80,700 |
| Structural Shapes—Heavy: | |
| Algoma Steel Corporation, Limited | 50,500 |
| Atlantic Industries Limited | 12,000 |
| Manitoba Rolling Mill Company, Limited | 6,200 |
| Steel Company of Canada, Limited | 11,000 |
| TOTAL | 79,700 |
| Structural Shapes—Light: | |
| Algoma Steel Corporation, Limited | 103,000 |
| Manitoba Rolling Mill Company, Limited | 6,100 |
| Steel Company of Canada, Limited | 18,000 |
| TOTAL | 127,100 |
| Steel Piling (Rolled): | |
| Algoma Steel Corporation, Limited | 16,000 |
| Plates (Sheared and Universal): | |
| Algoma Steel Corporation, Limited | 3,800 |
| Dominion Foundries and Steel, Limited | 90,000 |
| Manitoba Rolling Mill Company, Limited | 1,100 |
| Steel Company of Canada, Limited | 100,500 |
| TOTAL | 195,400 |
| Sheets—Hot Rolled: | |
| Atlas Steels, Limited | 6,000 |
| Steel Company of Canada, Limited | 327,000 |
| TOTAL | 333,000 |
| Skelp: | |
| Steel Company of Canada, Limited | 58,000 |
| Strip for Cold Reduced Black Plate and Tin Plate: | |
| Dominion Foundries and Steel, Limited | 250,000 |
| Steel Company of Canada, Limited | 162,000 |
| TOTAL | 412,000 |

| | Annual capacity (N. T.) |
|---|---|
| Bars—Other than Concrete Reinforcement: | |
| Algoma Steel Corporation, Limited | 24,00 |
| Atlantic Industries Limited | 10,00 |
| Atlas Steels, Limited | 152,00 |
| Burlington Steel Company, Ltd. | 21,00 |
| Canadian Tube & Steel Products, Limited | 152,00 |
| Dominion Steel & Coal Corporation, Ltd. | 61,60 |
| Manitoba Rolling Mill Company, Limited | 29,40 |
| Steel Company of Canada, Limited | 305,00 |
| Vancouver Rolling Mills, Ltd. | 35,00 |
| TOTAL | 790,00 |
| Bars—Concrete Reinforcement: | |
| Algoma Steel Corporation, Limited | 16,00 |
| Burlington Steel Company, Ltd. | 21,00 |
| Canadian Tube & Steel Products, Limited | 20,00 |
| Manitoba Rolling Mill Company, Limited | 19,5 |
| Steel Company of Canada, Limited | 16,5 |
| TOTAL | 93,0 |
| Wire Rods: | |
| Atlas Steels, Limited | 24,00 |
| Dominion Steel & Coal Corporation, Ltd. | 112,0 |
| Steel Company of Canada, Limited | 163,0 |
| TOTAL | 299,0 |
| Ingots, Blooms and Billets for Forging Purposes: | |
| Algoma Steel Corporation, Limited | 110,0 |
| Atlas Steels, Limited | 24,0 |
| Dominion Steel & Coal Corporation, Ltd. | 24,5 |
| TOTAL | 158,5 |
| Miscellaneous Finished Hot Rolled Products: | |
| Algoma Steel Corporation, Limited | 242,0 |
| Burlington Steel Company, Ltd. | 2,5 |
| Steel Company of Canada, Limited | 73,0 |
| TOTAL | 317,5 |

(The foregoing statistics were compiled by the American Iron & Steel Institute and published with its permission)

# The Market Outlook

STEELMAKERS enter the closing quarter of the year burdened wth far more orders than they can handle expeditiously. Arrearages from third quarter are substantial, and the defense load, sustained at high level, gives signs of increasing as projected work reaches active stage. In the circumstances, lacking sizable order cancellations, there is little possibility demand-supply balance can be achieved in the months immediately ahead.

**SUPPLY—** There has been some loosening of reserve steel supplies held for emergency work in fourth quarter. Tonnage is relatively small, however, including structural shapes, plates and bars. Meanwhile, outright order cancellations to date are negligible despite government control authorities' efforts to eliminate duplicate tonnage from mill order books. Only in a few specialties, tool steel, wire rope, enameling sheets and heavy forgings, has any noticeable lag appeared. In some products, galvanized sheets for example, supply conditions are more stringent than ever. Further, rail inquiry for 1952 is appearing, the Pennsylvania railroad closing bids on 100,000 tons this week, up from 78,000 tons in 1951.

**BOOKINGS—** Most steel producers are declining orders for shipment beyond first quarter 1952, except in the case of defense requirements. On the latter account business is being accepted by some interests into third quarter on a limited scale. As a general thing the steelmakers are booking with extreme caution even for first quarter. Setting up of rolling schedules under the Controlled Materials Plan is more orderly than at the beginning of third quarter.

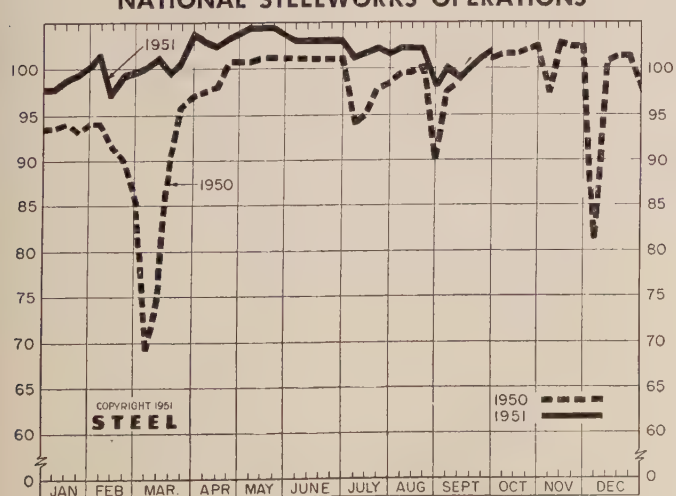
**STRUCTURALS—** Some shape tonnage held in reserve at mills for emergency fourth-quarter construction is being released. Whether the tonnage will materially relieve the acute supply stringency expected before yearend by some fabricating shops is questionable. Measured by ordinary standards the released tonnage is modest. Shortage in structurals is likely to continue well through 1952. First-quarter tonnage requests are running 200 per cent of available supply with peak demand expected in second or third quarter. Channeling of structurals, it is understood, will be first, for military programs, second, for important machine tool expansion, third, for aluminum and nickel expansion, fourth, for steel plant expansion, and fifth, miscellaneous construction.

**WAREHOUSE—** While not yet in receipt of the official text of the amended NPA order, distributors are being advised their steel quotas will be stepped up to 100 per cent of their base period receipts in carbon and alloy steels, effective Jan. 1. Currently, they are receiving 85 per cent of receipts in the base period, first nine months of 1950. The new quota is minimum, the mills being permitted to sell still larger tonnage to the warehouses should they have any to spare. Provision also is understood made to care for requirements of new warehouses that have little or no tonnage in the way of base period activity. Extent to which the warehouses will be helped by the increase in quotas is uncertain. Minimum quotas to date have actually worked out to be ceilings in practice, so the distributors are not counting too heavily on extra tonnage yet.

**PRODUCTION—** Steel operations are being pressed at above-capacity pace, last week the national ingot rate rising ½ point to 101.5 per cent of capacity. However, the mills are beginning to show wear-and-tear from the prolonged period of high level production. Shutdowns for repairs are more frequent. Meanwhile, steel expansion programs are being pushed to completion as rapidly as possible. For instance, despite structural steel cutbacks, first unit of the new Fairless Works, United States Steel Co. at Morrisville, Pa., the tin plate mill, is expected to come into production on schedule around Jan. 1.

**PRICES—** Steel and related product prices are holding at the government freeze levels. STEEL's weighted index on finished steel is unchanged at 171.92.

## NATIONAL STEELWORKS OPERATIONS




## DISTRICT INGOT RATES

Percentage of Capacity Engaged at Leading Production Points

| | Week Ended Sept. 29 | Change | Same Week 1950 | Same Week 1949 |
|---|---|---|---|---|
| Pittsburgh | 98.5 | — 0.5 | 101 | 81.5 |
| Chicago | 105.5 | + 0.5 | 103 | 91 |
| Mid-Atlantic | 100 | 0 | 99 | 80 |
| Youngstown | 106 | + 1 | 106 | 94 |
| Wheeling | 96.5 | — 0.5 | 98 | 91.5 |
| Cleveland | 97.5 | — 3* | 100 | 102.5 |
| Buffalo | 104 | 0 | 104 | 79.5 |
| Birmingham | 102 | +12 | 100 | 100 |
| New England | 93 | +11 | 82 | 71 |
| Cincinnati | 103 | + 3 | 103 | 92 |
| St. Louis | 86.5 | — 6.5 | 92 | 84.5 |
| Detroit | 107 | + 1 | 106 | 52 |
| Western | 102 | — 1 | 105 | 77 |
| Estimated national rate | 101.5 | + 0.5 | 101 | 85 |

Based on weekly steelmaking capacity of 1,999,034 tons for 1951; 1,928,721 tons for second half, 1950; 1,906,268 tons for first half, 1950; 1,843,516 tons for 1949.

* Change from revised rate for preceding week.

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# Composite Market Averages

**FINISHED STEEL INDEX, Weighted:**

| | Sept. 27 1951 | Week Ago | Month Ago | Year Ago | 5 Yrs. Ago |
|---|---|---|---|---|---|
| Index (1935-39 av.=100) .. | 171.92 | 171.92 | 171.92 | 156.99 | 112.04 |
| Index in cents per lb. .... | 4.657 | 4.657 | 4.657 | 4.253 | 3.035 |
| **ARITHMETICAL PRICE COMPOSITES** | | | | | |
| Finished Steel, NT ..... | $106.32 | $106.32 | $106.32 | $94.50 | $64.45 |
| No. 2 Fdry, Pig Iron, GT.. | 52.54 | 52.54 | 52.54 | 48.84 | 28.17 |
| Basic Pig Iron, GT ..... | 52.16 | 52.16 | 52.16 | 47.72 | 27.50 |
| Malleable Pig Iron, GT ... | 53.27 | 53.27 | 53.27 | 49.13 | 28.79 |
| Steelmaking scrap, GT ... | 44.00 | 44.00 | 44.00 | 41.00 | 19.17 |

Weighted finished steel index based on average shipments and Pittsburgh district prices of the following 14 respresentative products during 5-year base period 1935-39: Structural shapes, plates, rails, hot-rolled and cold-finished bars, pipe, wire, nails, tin plate, hot and cold-rolled sheets, galvanized sheets, hot and cold-rolled strip. For complete explanation see STEEL, Sept. 19, 1949, p. 54.

Arithmetical steel price composite based on same products as the weighted finished steel index with the exception of rails, cold-finished bars, galvanized sheets and hot-rolled strip.

Basic and No. 2 foundry pig iron composites are based on average prices at Pittsburgh, Bethlehem, Birmingham, Buffalo, Chicago, Cleveland, Granite City, Youngstown. Malleable composite based on same points except Birmingham.

Steelmaking scrap composite based on average prices of No. 1 heavy melting steel at Pittsburgh, Chicago and Philadelphia.

# Comparison of Prices

Comparative prices by districts, in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

## FINISHED MATERIALS

| | Sept. 27 1951 | Week Ago | Month Ago | Year Ago | 5 Yrs. Ago |
|---|---|---|---|---|---|
| Bars, H.R., Pittsburgh .... | 3.70 | 3.70 | 3.70 | 3.45 | 2.50 |
| Bars, H.R., Chicago ..... | 3.70 | 3.70 | 3.70 | 3.45 | 2.50 |
| Bars, H.R., del. Philadelphia | 4.223 | 4.223 | 4.223 | 3.93 | 2.86 |
| Bars, C.F., Pittsburgh .... | 4.55 | 4.55 | 4.55 | 4.10–15 | 3.10 |
| Shapes, Std., Pittsburgh .. | 3.65 | 3.65 | 3.65 | 3.40 | 2.35 |
| Shapes, Std., Chicago .... | 3.65 | 3.65 | 3.65 | 3.40 | 2.35 |
| Shapes, del. Philadelphia .. | 3.918 | 3.918 | 3.918 | 3.46 | 2.48 |
| Plates, Pittsburgh ..... | 3.70 | 3.70 | 3.70 | 3.50 | 2.50 |
| Plates, Chicago ..... | 3.70 | 3.70 | 3.70 | 3.50 | 2.50 |
| Plates, Coatesville, Pa. ... | 4.15 | 4.15 | 4.15 | 3.90 | 2.50 |
| Plates, Sparrows Point, Md. | 3.70 | 3.70 | 3.70 | 3.50 | 2.50 |
| Plates, Claymont, Del. .... | 4.15 | 4.15 | 4.15 | 3.90 | 2.50 |
| Sheets, H.R., Pittsburgh .. | 3.60–75 | 3.60–75 | 3.60–75 | 3.35 | 2.425 |
| Sheets, H.R., Chicago .... | 3.60 | 3.60 | 3.60 | 3.35 | 2.425 |
| Sheets, C.R., Pittsburgh .. | 4.35 | 4.35 | 4.35 | 4.10 | 3.275 |
| Sheets, C.R., Chicago ..... | 4.35 | 4.35 | 4.35 | 4.10 | 3.275 |
| Sheets, C.R., Detroit .... | 4.55 | 4.55 | 4.55 | 4.30 | 3.375 |
| Sheets, Galv., Pittsburgh.. | 4.80 | 4.80 | 4.80 | 4.40 | 4.05 |
| Strip, H.R., Pittsburgh ... | 3.75-4.00 | 3.75-4.00 | 3.75-4.00 | 3.50 | 2.35 |
| Strip, H.R., Chicago ..... | 3.50 | 3.50 | 3.50 | 3.25 | 2.35 |
| Strip, C.R., Pittsburgh ... | 4.65-5.35 | 4.65-5.35 | 4.65-5.35 | 4.15–50 | 3.05 |
| Strip, C.R., Chicago ..... | 4.90 | 4.90 | 4.90 | 4.30 | 3.15 |
| Strip, C.R., Detroit ..... | 4.85-5.60 | 4.85-5.60 | 4.85-5.60 | 4.35–95 | 3.15 |
| Wire, Basic, Pittsburgh ... | 4.85-5.10 | 4.85-5.10 | 4.85-5.10 | 4.50 | 3.05 |
| Nails, Wire, Pittsburgh ... | 5.90-6.20 | 5.90-6.20 | 5.90-6.20 | 5.30 | 3.75 |
| Tin plate, box, Pittsburgh . | $8.70 | $8.70 | $8.70 | $7.50 | $5.25 |

## SEMIFINISHED

| | | | | | |
|---|---|---|---|---|---|
| Billets, forging, Pitts. (NT) | $66.00 | $66.00 | $66.00 | $63.00 | $47.00 |
| Wire rods, 7/32-⅜", Pitts. .. | 4.10–30 | 4.10–30 | 4.10–30 | 3.85 | 2.30 |

## PIG IRON, Gross Ton

| | | | | | |
|---|---|---|---|---|---|
| Bessemer, Pitts. ..... | $53.00 | $53.00 | $53.00 | $47–$50 | $29.00 |
| Basic Valley ..... | 52.00 | 52.00 | 52.00 | 46–49 | 28.00 |
| Basic, del. Phila. ..... | 56.61 | 56.61 | 56.61 | 50.39 | 29.93 |
| No. 2 Fdry, Pitts. ..... | 52.50 | 52.50 | 52.50 | 49.50 | 28.50 |
| No. 2 Fdry, Chicago ..... | 52.50 | 52.50 | 52.50 | 46.50-49.50 | 28.50 |
| No. 2 Fdry, Valley ..... | 52.50 | 52.50 | 52.50 | 49.50 | 28.50 |
| No. 2 Fdry, Del. Phila. .. | 57.11 | 57.11 | 57.11 | 50.89 | 30.43 |
| No. 2 Fdry, Birm. ..... | 48.88 | 48.88 | 48.88 | 45.88 | 24.88 |
| No. 2 Fdry (Birm.) del. Cin. | 55.49 | 55.49 | 55.49 | 52.58 | 28.94 |
| Malleable Valley ..... | 52.50 | 52.50 | 52.50 | 49.50 | 28.50 |
| Malleable, Chicago ..... | 52.50 | 52.50 | 52.50 | 46.50-49.50 | 28.50 |
| Charcoal, Lyles, Tenn. .... | 66.00 | 66.00 | 66.00 | 60.00 | 33.00 |
| Ferromanganese, Etna, Pa. | 188.00 | 188.00 | 188.00 | 175.00 | 140.00* |

* Delivered, Pittsburgh.

## SCRAP, Gross Ton (including broker's commission)

| | | | | | |
|---|---|---|---|---|---|
| No. 1 Heavy Melt. Pitts. .. | $45.00 | $45.00 | $45.00 | $44.00 | $20.00 |
| No. 1 Heavy Melt. E. Pa. . | 43.50 | 43.50 | 43.50 | 39.00 | 18.75 |
| No. 1 Heavy Melt. Chicago | 43.50 | 43.50 | 43.50 | 40.00 | 18.75 |
| No. 1 Heavy Melt. Valley.. | 45.00 | 45.00 | 45.00 | 43.75 | 20.00 |
| No. 1 Heavy Melt. Cleve... | 44.00 | 44.00 | 44.00 | 43.25 | 19.50 |
| No. 1 Heavy Melt. Buffalo | 44.00 | 44.00 | 44.00 | 41.50 | 19.25 |
| Rails, Rerolling, Chicago.. | 52.50 | 52.50 | 52.50 | 61.00 | 22.25 |
| No. 1 Cast, Chicago ..... | 49.00* | 49.00* | 49.00* | 50.50 | 20.00 |

* F.o.b. shipping point.

## COKE, Net Ton

| | | | | | |
|---|---|---|---|---|---|
| Beehive, Furn. Connlsvl. .. | $14.75 | $14.75 | $14.75 | $14.25 | $8.75 |
| Beehive, Fdry., Connlsvl... | 17.50 | 17.50 | 17.50 | 16.50 | 9.50 |
| Oven Fdry., Chicago ..... | 23.00 | 23.00 | 23.00 | 21.00 | 14.35 |

## NONFERROUS METALS

| | | | | | |
|---|---|---|---|---|---|
| Copper, del. Conn. ..... | 24.50 | 24.50 | 24.50 | 22.50–24.50 | 14.375 |
| Zinc, E. St. Louis ..... | 17.50 | 17.50 | 17.50 | 17.50 | 8.25 |
| Lead, St. Louis ..... | 16.80 | 16.80 | 16.80 | 15.80 | 8.10 |
| Tin, New York ..... | 103.00 | 103.00 | 103.00 | 103.00 | 52.00 |
| Aluminum, del. ..... | 19.00 | 19.00 | 19.00 | 17.50–19.00 | 15.00 |
| Antimony, Laredo, Tex. .. | 42.00 | 42.00 | 42.00 | 32.00 | 14.50 |
| Nickel, refinery, duty paid. | 56.50 | 56.50 | 56.50 | 48.00 | 35.00 |

# PIG IRON

F.o.b. furnace prices quoted under GCPR as reported to STEEL Minimum delivered prices are approximate and do not include 3% federal tax. Key to producing companies published on second following page

## PIG IRON, Gross Ton

| | Basic | No. 2 Foundry | Malleable | Bessemer |
|---|---|---|---|---|
| Bethlehem,Pa. B2 ..... | $54.00 | $54.50 | $55.00 | $55.50 |
| Brooklyn,N.Y., del. ..... | .... | 59.18 | 59.68 | .... |
| Newark,del. ..... | 56.87 | 57.37 | 57.87 | 58.37 |
| Philadelphia, del. ..... | 56.61 | 57.11 | 57.61 | 58.11 |
| *Birmingham District* | | | | |
| AlabamaCity,Ala. R2 ..... | 48.38 | 48.88 | .... | .... |
| Birmingham R2 ..... | 48.38 | 48.88 | .... | .... |
| Birmingham S9 ..... | 48.38 | 48.88 | .... | .... |
| Woodward,Ala. W15 ..... | 48.38 | 48.88 | .... | .... |
| Cincinnati, del. ..... | .... | 55.49 | .... | .... |
| *Buffalo District* | | | | |
| Buffalo R2 ..... | 52.00 | 52.50 | 53.00 | .... |
| Buffalo H1 ..... | 52.00 | 52.50 | 53.00 | .... |
| Tonawanda,N.Y. W12 ..... | 52.00 | 52.50 | 53.00 | .... |
| No.Tonawanda,N.Y. T9 ..... | .... | 52.50 | 53.00 | .... |
| Boston, del. ..... | 62.11 | 62.61 | 63.11 | .... |
| Rochester,N.Y., del. ..... | 54.88† | 55.38† | 55.88† | .... |
| Syracuse,N.Y., del. ..... | 55.91† | 56.41† | 56.91† | .... |
| *Chicago District* | | | | |
| Chicago I-3 ..... | 52.00 | 52.50 | 52.50 | 53.00 |
| Gary,Ind. U5 ..... | 52.00 | .... | 52.50 | .... |
| IndianaHarbor,Ind. I-2 ..... | 52.00 | .... | 52.50 | .... |
| So.Chicago,Ill. W14 ..... | 52.00 | 52.50 | 52.50 | .... |
| So.Chicago,Ill. Y1 ..... | 52.00 | 52.50 | 52.50 | .... |
| So.Chicago,Ill. U5 ..... | 52.00 | .... | 52.50 | 53.00 |
| Milwaukee, del. ..... | 54.06 | 54.56 | 54.56 | 55.06 |
| Muskegon,Mich., del. ..... | .... | 58.47 | 58.47 | .... |
| *Cleveland District* | | | | |
| Cleveland A7 ..... | 52.00 | 52.50 | 52.50 | 53.00 |
| Cleveland R2 ..... | 52.00 | 52.50 | 52.50 | .... |
| Akron,O., del. from Cleve. ..... | 54.61 | 55.11 | 55.11 | 55.61 |
| Lorain,O. N3 ..... | 52.00 | .... | .... | 53.00 |
| Duluth I-3 ..... | .... | .... | 52.50 | .... |
| Erie,Pa. I-3 ..... | 52.00 | 52.50 | 52.50 | 53.00 |
| Everett,Mass. E1 ..... | .... | 55.25 | 55.75 | .... |
| Fontana,Calif. K1 ..... | 58.00 | 58.50 | .... | .... |
| Geneva,Utah G1 ..... | 52.00 | 52.50 | .... | .... |
| Seattle,Tacoma,Wash., del. ..... | .... | 60.66 | .... | .... |
| Portland,Oreg., del. ..... | .... | 60.66 | .... | .... |
| LosAngeles,SanFrancisco, del. ... | 60.16 | 60.66 | .... | .... |
| GraniteCity,Ill. G4 ..... | 53.90 | 54.40 | 54.90 | .... |
| St.Louis, del. (inc. tax) ..... | 54.66 | 55.16 | 55.66 | .... |
| Ironton,Utah C11 ..... | 52.00 | 52.50 | .... | .... |
| LoneStar,Tex. L6 ..... | 48.00 | *48.50 | 48.50 | .... |
| Minnequa,Colo. C10 ..... | 54.00 | 55.00 | 55.00 | .... |
| *Pittsburgh District* | | | | |
| NevilleIsland,Pa. P6 ..... | .... | 52.50 | 52.50 | 53.00 |
| Pitts., N.&S. sides, Ambridge, Aliquippa, del. ..... | .... | 53.80 | 53.80 | 54.30 |
| McKeesRocks, del. ..... | .... | 53.54 | 53.54 | 54.04 |
| Lawrenceville, Homestead, McKeesport, Monaca, del. .... | .... | 54.07 | 54.07 | 54.57 |
| Verona, del. ..... | .... | 54.57 | 54.57 | 55.07 |
| Brackenridge, del. ..... | .... | 54.82 | 54.82 | 55.32 |
| Bessemer,Pa. U5 ..... | 52.00 | .... | 52.50 | 53.00 |
| Clairton,Rankin,So.Duquesne,Pa. U5 | 52.00 | .... | .... | .... |
| McKeesport,Pa. N3 ..... | 52.00 | .... | .... | 53.00 |
| Monessen,Pa. P7 ..... | 54.00 | .... | .... | .... |
| Sharpsville,Pa. S6 ..... | .... | .... | 52.50 | 53.00 |
| Steelton,Pa. B2 ..... | 54 00 | 54.50 | 55.00 | 55.50 |
| Swedeland,Pa. A3 ..... | 56.00 | 56.50 | 57.00 | 57.50 |
| Toledo,O. I-3 ..... | 52.00 | 52.50 | 52.50 | 53.00 |
| Cincinnati, del. ..... | 57.47 | 57.97 | .... | .... |
| Troy,N.Y. R2 ..... | 54.00 | 54.50 | 55.00 | 55.50 |
| *Youngstown District* | | | | |
| Hubbard,O. Y1 ..... | 52.00 | 52.50 | 52.50 | .... |
| Youngstown Y1 ..... | 52.00 | 52.50 | 52.50 | .... |
| Youngstown U5 ..... | 52.00 | .... | .... | 53.00 |
| Mansfield,O., del. ..... | 56.65 | 57.15 | 57.15 | 57.65 |

* Low phos, southern grade. † Preliminary.

## PIG IRON DIFFERENTIALS

*Silicon:* Add 50 cents per ton for each 0.25% Si over base grade, 1.7 2.25%, except on low phos iron on which base is 1.75-2.00%.
*Phosphorus:* Deduct 38 cents per ton for P content of 0.70% and ov
*Manganese:* Add 50 cents per ton for each 0.50% manganese over 1 or portion thereof.
*Nickel:* Under 0.50% no extra; 0.50-0.74%, incl., add $2 per ton a each additional 0.25%, add $1 per ton.

## BLAST FURNACE SILVERY IRON, Gross Ton

(Base 6.0016.50% silicon; add $1.50 for each 0.5% Si)

| | |
|---|---|
| Jackson,O. G2, J1 ..... | $62. |
| Buffalo H1 ..... | 63. |

## ELECTRIC FURNACE SILVERY PIG IRON, Gross Ton

(Base 14.01-14.50% silicon; add $1 for each 0.5% Si to 18%; $1 each 0.5% Mn over 1%; $1 for each 0.045% max. P)

| | |
|---|---|
| Niagara Falls,N.Y. P15 ..... | $88 |
| Keokuk,Iowa, Openhearth & Fdry, frt. allowed K2 ..... | 92 |
| Keokuk, OH & Fdry., 12½ lb piglets, 16% Si, frt. allowed K2 | 95 |
| Wenatchee,Wash., O.H. & Fdry., frt. allowed K2 ..... | 92 |

## CHARCOAL PIG IRON, Gross Ton

(Low phos semi-cold blast; differential charged for silicon over base grade; also for hard chilling iron Nos. 5 & 6)

| | |
|---|---|
| Lyles,Tenn. T3 ..... | $66 |

## LOW PHOSPHORUS PIG IRON, Gross Ton

| | |
|---|---|
| Cleveland, intermediate, A7 ..... | $57 |
| Steelton,Pa. B2 ..... | 60 |
| Philadelphia delivered ..... | 63 |
| Troy,N.Y. R2 ..... | 60 |

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# Semifinished and Finished Steel Products

Mill prices quoted under GCPR as reported to STEEL, Sept. 27, 1951; cents per pound except as otherwise noted. Changes shown in italics. Code numbers following mill points indicate producing company; key on next two pages.

**OTS, Carbon, Forging (NT)**
ntana,Calif. K1 ....$79.00
nhall,Pa. U5 .....52.00

**OTS, Alloy (NT)**
roit R7 .....$54.00
ntana,Calif. K1 .....80.00
uston,Tex. S5 .....62.00
dland,Pa. C18 .....54.00
nhall,Pa. U5 .....54.00

**LETS, BLOOMS & SLABS**
**Carbon, Rerolling (NT)**
ssemer,Pa. U5 .....$56.00
irton,Pa. U5 .....56.00
sley,Ala. T2 .....56.00
irfield,Ala. T2 .....56.00
ntana,Calif. K1 .....75.00
ry,Ind. U5 .....56.00
nstown,Pa. B2 .....56.00
ckawanna,N.Y., B2..56.00
nhall,Pa. U5 .....56.00
Chicago,Ill. U5 .....56.00
Duquesne,Pa. U5 ...56.00

**Carbon, Forging (NT)**
ssemer,Pa. U5 .....$66.00
ffalo,O. R2 .....66.00
nton,O. R2 .....66.00
irton,Pa. U5 .....66.00
veland R2 .....66.00
shohocken,Pa. A3 ..73.00
troit R7 .....69.00
sley,Ala. T2 .....66.00
irfield,Ala. T2 .....66.00
ntana,Calif. K1 .....85.00
ry,Ind. U5 .....66.00
eva,Utah G1 .....66.00
uston,Tex. S5 .....74.00
nstown,Pa. B2 .....66.00
ckawanna,N.Y. B2 ..66.00
sAngeles B3 .....85.00
nhall,Pa. U5 .....66.00
ttle B3 .....85.00
Chicago R2,U5,W14 .66.00
Duquesne,Pa. U5 ...66.00
SanFrancisco B3 ...85.00

**Alloy, Forging (NT)**
hlehem,Pa. B2 ....$70.00
ffalo R2 .....70.00
nton,O. R2 .....70.00
nton,O.(29) T7 .....66.00
shohocken,Pa. A3 ..77.00
troit R7 .....73.00
ntana,Calif. K1 ....89.00
ry,Ind. U5 .....70.00
uston,Tex. S5 .....78.00
.Harbor,Ind. Y1 ...70.00
nstown,Pa. B2 ....70.00
ckawanna,N.Y. B2 ..70.00
sAngeles B3 .....90.00
ssillon,O. R2 .....70.00
dland,Pa. C18 .....70.00
nhall,Pa. U5 .....70.00
Chicago R2,U5,W14.70.00
Duquesne,Pa. U5 ...70.00
uthers,O. Y1 .....70.00
rren,O. C17 .....70.00

**UNDS, SEAMLESS TUBE (NT)**
nton,O. R2 .....$82.00
veland R2 .....82.00
ntana,Calif. K1 ...103.00
ry,Ind. U5 .....82.00
ssillon,O. R2 .....82.00
Chicago, Ill. R2 ...82.00
Duquesne,Pa. U5 ...82.00

**ET BARS (NT)**
ntana,Calif. K1 ...$89.00

**LP**
quippa,Pa. J5 .....$3.45
nhall,Pa. U5 .....3.35
rren,O. R2 .....3.35
ngstown, R2, U5 ..3.35

**TE RODS**
on,Ill. L1 .....4.40
bamaCity,Ala. R2 ..4.10
falo W12 .....4.10
veland A7 .....4.10
nora,Pa. A7 .....4.10
rfield,Ala. T2 .....4.10
ntana,Calif. K1 .....4.90
uston, Tex. S5 .....4.50
nstown,Pa. B2 .....4.10
et,Ill. A7 .....4.10
:Angeles B3 .....4.90
nequa,Colo. C10 ....4.35
nessen,Pa. P7 .....4.30
Tonawanda,N.Y.B11 .4.10
tsburg,Calif. C11 ....4.75
rtsmouth,O. P12 ....4.30
bling,N.J. R5 .....4.20
Chicago,Ill. R2 .....4.10
rrowsPoint,Md. B2 ..4.20
rling,Ill.(1) N15 ....4.10
uthers,O. Y1 .....4.10
rance,Calif. C11 ....4.90
rcester,Mass. A7 ....4.40

**ET STEEL PILING**
.Harbor,Ind. I-2 ....4.45
ckawanna,N.Y. B2 ...4.45
nhall,Pa. U5 .....4.45
Chicago,Ill. U5 .....4.45

**STRUCTURALS**

**Carbon Steel Stand. Shapes**
AlabamaCity,Ala. R2 ..3.60
Aliquippa,Pa. J5 .....3.65
Bessemer,Ala, T2 .....3.65
Bethlehem,Pa. B2 .....3.70
Clairton,Pa. U5 .....3.65
Fairfield,Ala. T2 .....3.65
Fontana,Calif. K1 .....4.25
Gary,Ind. U5 .....3.65
Geneva,Utah G1 .....3.65
Houston,Tex. S5 .....4.05
Ind.Harbor,Ind. I-2 ....3.65
Johnstown,Pa. B2 .....3.70
KansasCity,Mo. S5 ....4.25
Lackawanna,N.Y. B2 ..3.70
LosAngeles B3 .....4.25
Minnequa,Colo. C10 ....4.10
Munhall,Pa. U5 .....3.65
Niles,Calif.(22) P1 ....4.85
Phoenixville,Pa. P4 ....6.25
Portland,Oreg. O4 .....4.50
Seattle B3 .....4.30
So.Chicago,Ill. U5,W14..3.65
So.SanFrancisco B3 ....4.20
Torrance,Calif. C11 ....4.25
Weirton,W.Va. W6 ....3.90

**Alloy Stand. Shapes**
Clairton,Pa. U5 .....4.35
Fontana,Calif. K1 .....5.55
Munhall,Pa. U5 .....4.35
So.Chicago,Ill. U5 ....4.35

**H.S., L.A. Stand. Shapes**
Aliquippa,Pa. J5 .....5.50
Bessemer,Ala. T2 .....5.50
Bethlehem,Pa.(14) B2 ..5.50
Clairton,Pa. U5 .....5.50
Fairfield,Ala. T2 .....5.50
Fontana,Calif. K1 .....6.10
Gary,Ind. U5 .....5.50
Geneva,Utah G1 .....5.50
Ind.Harbor,Ind. I-2 ....5.50
Ind.Harbor,Ind. Y1 ....6.00
Johnstown,Pa. B2 .....5.50
Lackawanna,N.Y.(14)B2 5.50
LosAngeles B3 .....6.05
Munhall,Pa. U5 .....5.50
Seattle B3 .....6.10
So.Chicago,Ill. U5 .....5.50
So.SanFrancisco B3 ....6.00
Struthers,O. Y1 .....6.00

**Wide Flange**
Bethlehem,Pa. B2 .....3.70
Clairton,Pa. U5 .....3.65
Fontana,Calif. K1 .....4.65
Lackawanna,N.Y. B2 ...3.70
Munhall,Pa. U5 .....3.65
So.Chicago,Ill. U5 .....3.65

**H.S., L.A. Wide Flange**
Bethehem,Pa. B2 .....5.50
Lackawanna,N.Y. B2 ...5.50
Munhall,Pa. U5 .....5.45
So.Chicago,Ill. U5 .....5.45

**BEARING PILES**
Munhall,Pa. U5 .....3.65
So.Chicago,Ill. U5 .....3.65

**PLATES, High-Strength Low-Alloy**
Aliquippa,Pa. J5 .....5.65
Bessemer,Ala., T2 .....5.65
Clairton,Pa. U5 .....5.65
Cleveland J5, R2 .....5.65
Conshohocken,Pa. A3 ...5.90
Fairfield,Ala. T2 .....5.65
Fontana,Calif.(30) K1 ..6.25
Gary,Ind. U5 .....5.65
Geneva,Utah G1 .....5.65
Ind.Harbor,Ind. I-2 ....5.65
Ind.Harbor,Ind. Y1 ....6.15
Johnstown,Pa. B2 .....5.65
Munhall,Pa. U5 .....5.65
Pittsburgh J5 .....5.65
Seattle B3 .....6.55
Sharon,Pa. S3 .....5.70
So.Chicago,Ill. U5 .....5.65
SparrowsPoint,Md. B2 ..5.65
Warren,O. R2 .....5.65
Youngstown Y1 .....6.15

**PLATES, Open-Hearth Alloy**
Claymont,Del. C22 .....4.85
Coatesville,Pa. L7 .....5.25
Conshohocken,Pa. A3 ...5.05
Fontana,Calif. K1 .....5.70
Gary,Ind. U5 .....4.75
Johnstown,Pa. B2 .....4.75
Munhall,Pa. U5 .....4.75
Sharon,Pa. S3 .....5.20
So.Chicago,Ill. U5 .....4.75
SparrowsPoint,Md. B2 ..4.75

**FLOOR PLATES**
Cleveland J5 .....4.75
Conshohocken,Pa. A3 ...4.75
Harrisburg,Pa. C5 .....5.95
Ind.Harbor,Ind. I-2 ....4.75
Munhall,Pa. U5 .....4.75
So.Chicago,Ill. U5 .....4.75

**PLATES, Ingot Iron**
Ashland,c.l.(15) A10 ...3.95
Ashland,lcl(15) A10 ....4.45
Cleveland,c.l. R2 .....4.30
Warren,O.c.l. R2 .....4.30

**PLATES, Carbon Steel**
AlabamaCity,Ala. R2 ..3.70
Aliquippa,Pa. J5 .....3.70
Ashland,Ky. (15) A10 ..3.70
Bessemer,Ala. T2 .....3.70
Clairton,Pa. U5 .....3.70
Claymont,Del. C22 ....4.15
Cleveland J5, R2 .....3.70
Coatesville,Pa. L7 ....4.15
Conshohocken,Pa. A3...4.15
Fairfield,Ala. T2 .....3.70
Fontana,Calif.(30) K1 ..4.30
Gary,Ind. U5 .....3.70
GraniteCity,Ill. G4 ....4.40
Geneva,Utah, G1 .....3.70
Harrisburg,Pa. C5 .....6.75
Houston,Tex. S5 .....4.10
Ind.Harbor,Ind. I-2, Y1.3.70
Johnstown,Pa. B2 .....3.70
Lackawanna,N.Y. B2 ..3.70
Minnequa,Colo. C10 ....4.50
Munhall,Pa. U5 .....3.70
Pittsburgh J5 .....3.70
Seattle B3 .....4.60
Sharon,Pa. S3 .....3.95
So.Chicago,Ill. U5, W14.3.70
SparrowsPoint,Md. B2 ..3.70
Steubenville,O. W10 ....3.70
Warren,O. R2 .....3.70
Weirton,W.Va. W6 ....4.00
Youngstown R2, U5, Y1.3.70

**PLATES, Carbon A.R.**
Fontana,Calif. K1 .....5.45
Geneva, Utah G1 .....4.85

**PLATES Wrought Iron**
Economy,Pa. B14 .....8.60

**BARS, Hot-Rolled Carbon**
AlabamaCity,Ala. R2 ..3.70
Aliquippa,Pa. J5 .....3.70
Alton,Ill. L1 .....4.15
Atlanta,Ga. A11 .....4.25
Bessemer,Ala. T2 .....3.70
Buffalo R2 .....3.70
Canton,O. R2 .....3.70
Clairton,Pa. U5 .....3.70
Cleveland R2 .....3.70
Detroit R7 .....3.85
Emeryville,Calif. J7 ....4.45
Fairfield,Ala. T2 .....3.70
Fontana,Calif. K1 .....4.40
Gary,Ind. U5 .....3.70
Houston,Tex. S5 .....4.10
Ind.Harbor,Ind. I-2, Y1.3.70
Johnstown,Pa. B2 .....3.70
KansasCity, Mo. S5 ....4.30
Lackawanna,N.Y. B2 ..3.70
LosAngeles B3 .....4.40
Milton,Pa. B6 .....4.20
Minnequa,Colo. C10 ....4.15
Niles,Calif. P1 .....5.05
N.Tonawanda,N.Y. B11.3.70
Pittsburg,Calif. C11 ....4.40
Pittsburgh J5 .....3.70
Portland,Oreg. O4 .....4.65
Seattle B3, N14 .....4.45
So.Chicago R2,U5,W14 .3.70
So.Duquesne,Pa. U5 ...3.70
So.SanFran.,Cal. B3 ...4.45
Struthers,O. Y1 .....3.70
Torrance,Calif. C11 ....4.40
Weirton,W.Va. W6 ....3.85
Youngstown R2, U5 ....3.70

**BAR SIZE ANGLES; S. SHAPES**
Aliquippa,Pa. J5 .....3.70
Atlanta A11 .....4.25
Johnstown,Pa. B2 .....3.70
Lackawanna,N.Y. B2 ...3.70
Niles,Calif. P1 .....5.05
Portland,Oreg. O4 .....4.65
SanFrancisco S7 .....4.85

**BAR SIZE ANGLES; H.R. CARBON**
Bethlehem,Pa. B2 .....3.90

**BARS, Hot-Rolled Alloy**
Bethlehem,Pa. B2 ....4.30
Buffalo R2 .....4.30
Canton,O. R2 .....4.30
Canton,O.(29) T7 .....3.95
Clairton,Pa. U5 .....4.30
Detroit R7 .....4.45
Ecorse,Mich. G5 .....4.65
Fontana,Calif. K1 .....5.35
Gary,Ind. U5 .....4.30
Houston,Tex. S5 .....4.70
Ind.Harbor,Ind. I-2, Y1.4.30
Johnstown,Pa. B2 .....4.30
KansasCity,Mo. S5 ....4.90
Lackawanna,N.Y. B2 ...4.30
LosAngeles B3 .....5.35
Massillon,O. R2 .....4.30
Midland,Pa. C18 .....4.30
So.Chicago R2,U5,W14..4.30
So.Duquesne,Pa. U5 ....4.30
Struthers,O. Y1 .....4.30
Warren,O. C17 .....4.30
Youngstown U5 .....4.30

**BAR SHAPES, Hot-Rolled Alloy**
Clairton,Pa. U5 .....4.55
Gary,Ind. U5 .....4.55
Youngstown U5 .....4.55

**BARS & SMALL SHAPES, H.R., High-Strength Low-Alloy**
Aliquippa,Pa. J5 .....5.55
Bessemer,Ala. T2 .....5.55
Bethlehem,Pa. B2 .....5.55
Clairton,Pa. U5 .....5.55
Cleveland R2 .....5.55
Fairfield,Ala. T2 .....5.55
Fontana,Calif. K1 .....6.60
Gary,Ind. U5 .....5.55
Ind.Harbor,Ind. I-2 ....5.55
IndianaHarbor,Ind. Y1 ..6.05
Johnstown,Pa. B2 ....5.55
Lackawanna,N.Y. B2 ..5.55
LosAngeles B3 .....6.25
Pittsburgh J5 .....5.55
Seattle B3 .....6.30
So.Duquesne,Pa. U5 ...5.55
So.SanFrancisco B3 ....6.30
Struthers, O. Y1 .....6.05
Youngstown U5 .....5.55

**BARS,Cold-Finished Carbon**
Ambridge,Pa. W18 ....4.55
BeaverFalls,Pa. M12,R2.4.55
Buffalo B5 .....4.60
Camden,N.J. P13 .....5.00
Carnegie,Pa. C12 .....4.55
Chicago W18 .....4.55
Cleveland A7, C20 ....4.55
Detroit P17 .....4.70
Donora,Pa. A7 .....4.55
Elyria,O. W8 .....4.55
FranklinPark, Ill. N5 ...4.55
Gary,Ind. R2 .....4.55
GreenBay, Wis. F7 ....4.55
Hammond,Ind, L2, M13.4.55
Hartford,Conn. R2 ....5.10
Harvey,Ill. B5 .....4.55
LosAngeles R2 .....6.00
Mansfield,Mass. B5 ....5.10
Massillon,O. R2, R8 ...4.55
Monaca, Pa. S17 .....4.55
Newark,N.J. W18 .....5.00
Plymouth,Mich. P5 ....4.80
Pittsburgh J5 .....4.55
Putnam,Conn. W18 ....5.10
Readville,Mass. C14 ....5.10
St. Louis,Mo. M5 .....4.95
So.Chicago,Ill. W14 ....4.55
SpringCity,Pa. (5) K3 ..5.00
Struthers,O. Y1 .....4.55
Waukegan,Ill. A7 .....4.55
Youngstown F3, Y1 ....4.55

**BARS, Cold-Finished Alloy**
Ambridge,Pa. W18 ....5.40
BeaverFalls,Pa. M12 ...5.40
Bethlehem,Pa. B2 ....5.40
Buffalo B5 .....5.40
Camden,N.J. P13 .....5.80
Canton,O. R2 .....5.40
Canton,O.(29) T7 .....4.90
Carnegie,Pa. C12 .....5.40
Chicago W18 .....5.40
Cleveland A7 .....5.45
Cleveland C20 .....5.40
Detroit P17 .....5.55
Donora,Pa. A7 .....5.45
Elyria,O. W8 .....5.40
Gary,Ind. R2 .....5.40
Hammond,Ind. L2, M13.5.40
Hartford,Conn. R2 ....5.85
Harvey,Ill. B5 .....5.40
Lackawanna,N.Y. B2 ..5.40
Mansfield,Mass. B5 ....5.85
Massillon,O. R2,R8 ....5.40
Midland,Pa. C18 .....5.40
Monaca,Pa. S17 .....5.40
Newark,N.J. W18 .....5.75
Plymouth,Mich. P5 ....5.60
So.Chicago,Ill. R2, W14.5.40
Struthers,O. Y1 .....5.40
Warren,O. C17 .....5.40
Waukegan,Ill. A7 .....5.45
Worcester,Mass. A7 ....5.75
Youngstown F3, Y1 ....5.40

**RAIL STEEL BARS**
ChicagoHts.(3,4) C2 ...4.75
ChicagoHts.(3,4) I-2 ...4.75
Franklin,Pa.(3,4) F5 ...4.75
FortWorth,Tex.(26) T4..4.85
Huntngtn,W.Va.(3) W7.5.50
Marion,O.(3) P11 .....4.75
Moline,Ill.(3) R2 .....3.80
Tonawanda(3,4) B12 ...4.75
Williamsport(3) S19 ....5.00
Williamsport(4) S19 ....5.10

**BARS, Wrought Iron**
Dover,N.J.(Staybolt)U1 15.00
Dover,(Eng.Bolt) U1 ..13.50
Dover,(Wrgt.Iron) U1 12.25
Economy,Pa. (S.R.) B14.9.60
Economy,Pa.(D.R.)B14 11.90
Economy,(Staybolt)B14 12.20
McK.Rks.(Staybolt) L5.14.50
McK.Rks.(S.R.) L5 ....9.60
McK.Rks.(D.R.) L5 ...13.00

**BARS, Reinforcing (Fabricators)**
AlabamaCity,Ala. R2 ..3.70
Atlanta A11 .....4.25
Buffalo R2 .....3.70
Cleveland R2 .....3.70
Emeryville,Calif. J7 ....4.45
Fairfield,Ala. T2 .....3.70
Fontana,Calif. K1 .....4.40
Gary,Ind. U5 .....3.70
Houston,Tex. S5 .....4.60
Ind.Harbor,Ind. I-2, Y1..3.70
IndianaHarbor,Ind. Y1 ..5.90
Irvin,Pa. U5 .....5.40
Lackawanna,N.Y. B2 ...3.70
LosAngeles B3 .....4.40
Milton,Pa. B6 .....4.20
Minnequa,Colo. C10 ....4.15
Niles,Calif. P1 .....5.05
Pittsburg,Calif. C11 ....4.40
Pittsburgh J5 .....3.70
Portland,Oreg. O4 .....4.65
Seattle B3, N14 .....4.45
So.Chicago R2,U5,W14 ..3.70
So.Duquesne,Pa. U5 ....3.70
So.SanFrancisco B3 ....4.45
SparrowsPoint (36) B2 ..5.40
Warren,O. R2 .....5.40
Weirton,W.Va. W6 ....5.75
Youngstown U5 .....5.40
Youngstown Y1 .....5.90

**SHEETS, Cold-Rolled High-Strength Low-Alloy**
Cleveland J5, R2 .....6.55
Ecorse,Mich. G5 .....7.10
Fontana,Calif. K1 .....7.50
Gary,Ind. U5 .....6.55
IndianaHarbor,Ind. Y1..7.05
IndianaHarbor,Ind. I-2 ..6.55
Irvin,Pa. U5 .....6.55
Lackawanna(37) B2 ...6.55
Pittsburgh J5 .....6.55
SparrowsPoint(38) B2 ..6.55
Warren,O. R2 .....6.55
Weirton,W. Va. W6 ....6.90
Youngstown Y1 .....7.05

**BARS, Reinforcing**
(Fabricated; to Consumers)
Huntington,W.Va. W7 ..5.50
Johnstown,¼-1" B2 ...4.75
LosAngeles B3 .....5.45
Marion,O. P11 .....5.00
Seattle B3, N14 .....5.55
So.SanFrancisco B3 ....5.45
SparrowsPt. ¼-1" B2 ..4.75
Williamsport, Pa. S19 ..5.10

**SHEETS, Hot-Rolled Steel**
(18 gage and heavier)
AlabamaCity,Ala. R2 ..3.60
Ashland,Ky.(8) A10 ...3.60
Butler,Pa. A10 .....3.60
Cleveland J5, R2 .....3.60
Conshohocken,Pa. A3 ..4.00
Detroit M1 .....4.40
Ecorse,Mich.(8) G5 ....3.80
Fairfield,Ala. T2 .....3.60
Fontana,Calif. K1 .....4.55
Gary,Ind. U5 .....3.60
GenevaUtah G1 .....3.70
GraniteCity,Ill. G4 ....4.30
Ind.Harbor,Ind. I-2, Y1..3.60
Irvin,Pa. U5 .....3.60
Lackawanna,N.Y. B2 ..3.60
Munhall,Pa. U5 .....3.60
Niles,O. N12 .....5.25
Pittsburg,Calif. C11 ....4.30
Pittsburgh J5 .....3.60
Sharon,Pa. S3 .....4.00
So.Chicago,Ill. W14 ....3.60
SparrowsPoint,Md. B2 .3.60
Steubenville,O. W10 ....3.60
Torrance,Calif. C11 ....4.30
Warren,O. R2 .....3.60
Weirton,W.Va. W6 .....3.60
WestLeechburg,Pa. A4..3.75
Youngstown U5, Y1 ....3.60

**SHEETS, H.R., (19 gage)**
AlabamaCity,Ala. R2 ..4.75
Dover,O. R1 .....5.65
Ind.Harbor,Ind. I-2, ....5.40
Mansfield,O. E6 .....5.65
Niles,O. N12 .....5.75
Torrance,Calif. C11 ....5.40

**SHEETS, H.R., (14-ga., heavier) High-Strength Low-Alloy**
Cleveland J5, R2 .....5.40
Conshohocken,Pa. A3 ..5.65
Ecorse,Mich. G5 .....5.95
Fairfield,Ala. T2 .....5.40
Fontana,Calif. K1 .....6.35
Gary,Ind. U5 .....5.40
Ind.Harbor,Ind. I-2 ....5.40
IndianaHarbor,Ind. Y1 ..5.90
Irvin,Pa. U5 .....5.40
Lackawanna(35) B2 ...5.40
Pittsburgh J5 .....5.40
Sharon,Pa. S3 .....5.40
So.Chicago,Ill. U5 .....5.40
SparrowsPoint (36) B2 ..5.40
Warren,O. R2 .....5.40
Weirton,W.Va. W6 ....5.75
Youngstown U5 .....5.40
Youngstown Y1 .....5.90

**SHEETS, Cold-Rolled High-Strength Low-Alloy**
Cleveland J5, R2 .....6.55
Ecorse,Mich. G5 .....7.10
Fontana,Calif. K1 .....7.50
Gary,Ind. U5 .....6.55
IndianaHarbor,Ind. Y1..7.05
IndianaHarbor,Ind. I-2 ..6.55
Irvin,Pa. U5 .....6.55
Lackawanna(37) B2 ...6.55
Pittsburgh J5 .....6.55
SparrowsPoint(38) B2 ..6.55
Warren,O. R2 .....6.55
Weirton,W. Va. W6 ....6.90
Youngstown Y1 .....7.05

**SHEETS, Cold-Rolled Steel (Commercial Quality)**

| | |
|---|---|
| Butler,Pa. A10 | 4.35 |
| Cleveland J5, R2 | 4.35 |
| Ecorse,Mich. G5 | 4.55 |
| Fairfield,Ala. T2 | 4.35 |
| Follansbee,W.Va. F4 | 5.35 |
| Fontana,Calif. K1 | 5.30 |
| Gary,Ind. U5 | 4.35 |
| GraniteCity,Ill. G4 | 5.05 |
| Ind.Harbor,Ind. I-2, Y1 | 4.35 |
| Irvin,Pa. U5 | 4.35 |
| Lackawanna,N.Y. B2 | 4.35 |
| Middletown,O. A10 | 4.35 |
| Pittsburg,Calif. C11 | 5.30 |
| Pittsburgh J5 | 4.35 |
| SparrowsPoint,Md. B2 | 4.35 |
| Steubenville,O. W10 | 4.35 |
| Warren,O. R2 | 4.35 |
| Weirton,W.Va. W6 | 4.35 |
| Youngstown Y1 | 4.35 |

**SHEETS, Galv'd No. 10 Steel**

| | |
|---|---|
| AlabamaCity,Ala. R2 | 4.80 |
| Ashland,Ky.(8) A10 | 4.80 |
| Canton,O. R2 | 4.80 |
| Dover,O. R1 | 5.50 |
| Fairfield,Ala. T2 | 4.80 |
| Gary,Ind. U5 | 4.80 |
| GraniteCity,Ill. G4 | 5.50 |
| Ind.Harbor,Ind. I-2 | 4.80 |
| Irvin,Pa. U5 | 4.80 |
| Kokomo,Ind.(13) C16 | 5.20 |
| MartinsFerry,O. W10 | 4.80 |
| Niles,O. N12 | 6.00 |
| Pittsburg,Calif. C11 | 5.55 |
| SparrowsPoint,Md. B2 | 4.80 |
| Steubenville,O. W10 | 4.80 |
| Torrance,Calif. C11 | 5.55 |
| Weirton,W.Va. W6 | 4.80 |

**SHEETS, Galvanized No. 10, High-Strength Low-Alloy**

| | |
|---|---|
| Irvin,Pa. U5 | 7.20 |
| SparrowsPoint(39) B2 | 6.75 |

**SHEETS, Galvannealed Steel**

| | |
|---|---|
| Canton,O. R2 | 5.35 |
| Irvin,Pa. U5 | 5.35 |
| Kokomo,Ind.(13) C16 | 5.75 |
| Niles,O. N12 | 6.55 |

**SHEETS, ZINCGRIP Steel No. 10**

| | |
|---|---|
| Butler,Pa. A10 | 5.05 |
| Middletown,O. A10 | 5.05 |

**SHEETS, Electro Galvanized**

| | |
|---|---|
| Cleveland R2 (28) | 5.65 |
| Niles,O. R2 (28) | 5.65 |
| Weirton,W.Va. W6 | 5.50 |

**SHEETS, Zinc Alloy**

| | |
|---|---|
| Ind.Harbor,Ind. I-2 | 5.70 |

**SHEETS, Drum Body**

| | |
|---|---|
| Pittsburg,Calif. C11 | 4.30 |
| Torrance,Calif. C11 | 4.30 |

**SHEETS, Well Casing**

| | |
|---|---|
| Fontana,Calif. K1 | 5.10 |
| Torrance,Calif. C11 | 5.10 |

**BLUED Stock, 29 ga.**

| | |
|---|---|
| Yorkville,O. W10 | 6.80 |
| Follansbee,W.Va.(23) F4 | 6.85 |

**ROOFING SHORT TERNES (8 lb. Coated)**

| | |
|---|---|
| Gary,Ind. U5 | 9.50 |

**MANUFACTURING TERNES (Special Coated)**

| | |
|---|---|
| Fairfield,Ala. T2 | 7.60 |
| Gary,Ind. U5 | 7.50 |
| Irvin,Pa. U5 | 7.50 |
| SparrowsPoint,Md. B2 | 7.60 |
| Yorkville,O. W10 | 7.50 |

**SHEETS, LT. Coated Ternes, 6 lb**

| | |
|---|---|
| Yorkville,O. W10 | 8.40 |

**SHEETS, Mfg. Ternes, 8 lb (Commercial Quality)**

| | |
|---|---|
| Gary,Ind. U5 | 9.50 |
| Yorkville,O. W10 | 9.50 |

**SHEETS, Long Terne Steel (Commercial Quality)**

| | |
|---|---|
| BeechBottom,W.Va.W10 | 5.20 |
| Gary,Ind. U5 | 5.20 |
| Mansfield,O. E6 | 6.05 |
| Middletown,O. A10 | 5.20 |
| Niles,O. N12 | 6.00 |
| Weirton,W.Va. W6 | 5.20 |

**SHEETS, Long Terne, Ingot Iron**

| | |
|---|---|
| Middletown,O. A10 | 5.60 |

**SHEETS, Enameling Iron**

| | |
|---|---|
| Ashland,Ky.(8) A10 | 4.65 |
| Cleveland R2 | 4.65 |
| Gary,Ind. U5 | 4.65 |
| GraniteCity,Ill. G4 | 5.35 |
| Ind.Harbor,Ind. I-2 | 4.65 |
| Irvin,Pa. U5 | 4.65 |
| Middletown,O. A10 | 4.65 |
| Youngstown Y1 | 4.65 |

| SHEETS, Culvert No. 16 | Cu Alloy | Cu Fe |
|---|---|---|
| Ashland,Ky. A10 | 5.60 | ... |
| Canton,O. R2 | 5.65 | 6.10 |
| Fairfield,Ala. T2 | 5.60 | 5.85 |
| Gary U5 | 5.60 | 5.85 |
| IndianaHarbor I-2 | 5.60 | 5.85 |
| Irvin,Pa. U5 | 5.60 | 5.85 |
| Kokomo,Ind. C16 | 6.25 | ... |
| MartinsFy,O. W10 | 5.60 | 5.85 |
| Pittsburg,Cal. C11 | 6.35 | ... |
| SparrowsPt. B2 | 5.60 | ... |
| Torrance,Cal. C11 | 6.35 | ... |

**SHEETS, Culvert, No. 16 Pure Iron**

| | |
|---|---|
| Ashland,Ky. A10 | 5.85 |
| Fairfield,Ala. T2 | 5.85 |

**SHEETS, Hot-Rolled Ingot Iron 18 Gage and Heavier**

| | |
|---|---|
| Ashland,Ky.(8) A10 | 3.85 |
| Cleveland R2 | 4.20 |
| Ind.Harbor,Ind. I-2 | 3.85 |
| Warren,O. R2 | 4.20 |

**SHEETS, Cold-Rolled Ingot Iron**

| | |
|---|---|
| Cleveland R2 | 4.95 |
| Middletown,O. A10 | 4.85 |
| Warren,O. R2 | 4.95 |

**SHEETS, Galvanized Ingot Iron No. 10 flat**

| | |
|---|---|
| Ashland,Ky.(8) A10 | 5.05 |
| Canton,O. R2 | 5.55 |

**SHEETS, ZINCGRIP Ingot Iron**

| | |
|---|---|
| Butler,Pa. A10 | 5.30 |
| Middletown,O. A10 | 5.30 |

**SHEETS, ALUMINIZED**

| | |
|---|---|
| Butler,Pa. A10 | 8.15 |

| TINPLATE,American Coke (Base Box) | 1.25 lb | 1.50 lb |
|---|---|---|
| Aliquippa J5 | $8.45 | $8.70 |
| Fairfield,Ala. T2 | 8.55 | 8.80 |
| Gary,Ind. U5 | 8.45 | 8.70 |
| Ind.Har. I-2, Y1 | 8.45 | 8.70 |
| Irvin,Pa. U5 | 8.45 | 8.70 |
| Pitts.,Cal. C11 | 9.20 | 9.45 |
| Sp.Pt.,Md. B2 | 8.55 | 8.80 |
| Warren,O. R2 | 8.45 | 8.70 |
| Weirton,W.Va. W6 | 8.45 | 8.70 |
| Yorkville,O. W10 | 8.45 | 8.70 |

**BLACK PLATE (Base Box)**

| | |
|---|---|
| Aliquippa,Pa. J5 | 6.25 |
| Fairfield,Ala. T2 | 6.35 |
| Gary,Ind. U5 | 6.25 |
| GraniteCity,Ill. G4 | 6.45 |
| Ind.Harbor,Ind. I-2, Y1 | 6.25 |
| Irvin,Pa. U5 | 6.25 |
| Niles,O. R2 | 6.25 |
| Pittsburg,Calif. C11 | 7.00 |
| SparrowsPoint,Md. B2 | 6.35 |
| Warren,O. R2 | 6.25 |
| Weirton,W.Va. W6 | 6.25 |
| Yorkville,O. W10 | 6.25 |

**HOLLOWARE ENAMELING Black Plate (29 gage)**

| | |
|---|---|
| Follansbee,W.Va. F4 | 5.85 |
| Gary,Ind. U5 | 5.85 |
| GraniteCity,Ill. G4 | 6.05 |
| Ind.Harbor,Ind. Y1 | 5.30 |
| Irvin,Pa. U5 | 5.85 |
| Yorkville,O. W10 | 6.15 |

**STRIP, Hot-Rolled Alloy**

| | |
|---|---|
| Bridgprt,Conn.(10) S15 | 5.45 |
| Carnegie,Pa. S18 | 5.85 |
| Fontana,Calif. K1 | 6.70 |
| Gary,Ind. U5 | 5.50 |
| Houston,Tex. S5 | 5.90 |
| KansasCity,Mo. S5 | 6.10 |
| Midland,Pa. C18 | 5.85 |
| NewBritn,Conn.(10) S15 | 5.45 |
| Sharon,Pa. S8 | 5.85 |
| Youngstown U5 | 5.50 |

**STRIP, Hot-Rolled, High-Strength Low-Alloy**

| | |
|---|---|
| Bessemer,Ala. T2 | 5.30 |
| Conshohocken,Pa. A3 | 5.55 |
| Ecorse,Mich. G5 | 5.95 |
| Fairfield,Ala. T2 | 5.30 |
| Fontana,Calif. K1 | 6.20 |
| Gary,Ind. U5 | 5.30 |
| Ind.Harb.,Ind. I-2 | 5.30 |
| IndianaHarbor,Ind. Y1 | 5.80 |
| Lackawanna,N.Y. B2 | 4.95 |
| LosAngeles(25) B3 | 6.05 |
| Seattle B3 | 6.30 |
| Sharon,Pa. S3 | 5.40 |
| So.SanFrancisco(25) B3 | 6.05 |
| SparrowsPoint,Md. B2 | 4.95 |
| Warren,O. R2 | 5.30 |
| Weirton,W.Va. W6 | 5.75 |
| Youngstown Y1 | 5.80 |
| Youngstown U5 | 5.30 |

**STRIP, Cold-Rolled, High-Strength Low-Alloy**

| | |
|---|---|
| Cleveland J5 | 6.70 |
| Cleveland A7 | 6.55 |
| Dover,O. G6 | 7.30 |
| Fontana,Calif. K1 | 6.95 |
| Lackawanna,N.Y. B2 | 6.40 |
| Sharon,Pa. S3 | 6.55 |
| SparrowsPoint,Md. B2 | 6.40 |
| Warren,O. R2 | 6.55 |
| Weirton,W.Va. W6 | 7.20 |
| Youngstown Y1 | 7.05 |

**STRIP, Hot-Rolled Carbon**

| | |
|---|---|
| Ala.City,Ala.(27) R2 | 3.50 |
| Alton,Ill. L1 | 3.95 |
| Ashland,Ky(8) A10 | 3.50 |
| Atlanta A11 | 4.05 |
| Bessemer,Ala. T2 | 3.50 |
| Bridgeprt,Conn.(10) S15 | 4.00 |
| Buffalo(27) R2 | 3.50 |
| Butler,Pa. A10 | 3.50 |
| Carnegie,Pa. S18 | 4.00 |
| Conshohocken,Pa. A3 | 3.90 |
| Detroit M1 | 4.40 |
| Ecorse,Mich. G5 | 3.80 |
| Fairfield,Ala. T2 | 3.50 |
| Fontana,Calif. K1 | 4.75 |
| Gary,Ind. U5 | 3.50 |
| Houston,Tex. S5 | 4.90 |
| Ind.Harbor,Ind. I-2, Y1 | 3.50 |
| Johnstown,Pa.(25) B2 | 3.50 |
| KansasCity,Mo.(9) S5 | 4.10 |
| Lackawanna,N.Y.(32) B2 | 3.50 |
| LosAngeles B3 | 4.25 |
| Milton,Pa. B6 | 4.00 |
| Minnequa,Colo. C10 | 4.55 |
| NewBritain(10) S15 | 4.00 |
| No.Tonawanda,N.Y. B11 | 3.50 |
| Pittsburg,Calif. C11 | 4.25 |
| Riverdale,Ill. A1 | 3.50 |
| SanFrancisco S7 | 4.85 |
| Seattle B3, N14 | 4.50 |
| Sharon,Pa. S3 | 4.00 |
| So.Chicago,Ill. W14 | 3.50 |
| So.SanFrancisco B3 | 4.25 |
| SparrowsPoint,Md. B2 | 3.50 |
| Torrance,Calif. C11 | 4.25 |
| Warren,O. R2 | 3.50 |
| Weirton,W.Va. W6 | 3.60 |
| WestLeechburg,Pa. A4 | 3.75 |
| Youngstown U5, Y1 | 3.50 |

**STRIP, Cold-Rolled Alloy Steel**

| | |
|---|---|
| Bridgeprt,Conn.(10) S15 | 10.75 |
| Carnegie,Pa. S18 | 10.60 |
| Cleveland A7 | 10.00 |
| Dover,O. G6 | 10.50 |
| Fontana,Calif. K1 | 11.65 |
| Harrison,N.J. C18 | 10.60 |
| Midland,Pa. C18 | 10.60 |
| NewBritn,Conn.(10) S15 | 10.75 |
| Pawtucket,R.I.(11) N8 | 10.75 |
| Pawtucket,R.I.(12) N8 | 11.00 |
| Sharon,Pa. S3 | 10.60 |
| Worcester,Mass. A7 | 10.30 |
| Youngstown C8 | 10.60 |

**STRIP, Cold-Rolled Carbon**

| | |
|---|---|
| Anderson,Ind.(40) G6 | 5.50 |
| Berea,O. C7 | 6.60 |
| Bridgeprt,Conn.(10) S15 | 5.30 |
| Butler,Pa. A10 | 4.60 |
| Cleveland A7, J5 | 4.60 |
| Dearborn,Mich. D3 | 5.60 |
| Detroit D2 | 5.60 |
| Detroit M1 | 5.40 |
| Dover,O.(40) G6 | 5.50 |
| Ecorse,Mich. G5 | 4.80 |
| Follansbee,W.Va. F4 | 5.30 |
| Fontana,Calif. K1 | 6.30 |
| FranklinPark,Ill.(40) T6 | 4.90 |
| Ind.Harbor,Ind. I-2 | 4.90 |
| Lackawanna,N.Y. B2 | 4.60 |
| LosAngeles C1 | 6.40 |
| Mattapan,Mass. T6 | 5.50 |
| Middletown,O. A10 | 4.60 |
| NewBritain(10) S15 | 5.30 |
| NewCastle,Pa. B4 | 5.20 |
| NewCastle(40) E5 | 5.20 |
| NewHaven,Conn. D2 | 5.80 |
| NewHaven,Conn. A7 | 5.10 |
| Pawtucket,R.I. R3 | 6.00 |
| Pawtucket,R.I.(21) N8 | 5.80 |
| Riverdale,Ill.(40) A1 | 4.90 |
| Rome,N.Y. R6 | 5.10 |
| Sharon,Pa. S3 | 5.30 |
| SparrowsPoint,Md. B2 | 4.60 |
| Trenton,N.J. R5 | 6.00 |
| Wallingford,Conn. W2 | 5.80 |
| Warren,O.(40) T5 | 5.20 |
| Warren,O. R2 | 4.60 |
| Weirton,W.Va. W6 | 4.60 |
| Youngstown C8 (40) | 5.20 |
| Youngstown Y1 | 4.60 |

**STRIP, Electro Galvanized**

| | |
|---|---|
| Dover,O. G6 | 5.50 |
| Warren,O. T5 | 5.20 |
| Weirton,W.Va. W6 | 4.60 |
| Youngstown C8 | 5.20 |

| STRIP, Cold-Finished Spring Steel (Annealed) | 0.26-0.40C | 0.41-0.60C | 0.61-0.80C | 0.81-1.05C | 1.06-1.35C |
|---|---|---|---|---|---|
| Berea,O. C7 | ... | 6.80 | 7.40 | 9.35 | 11.60 |
| Bridgeport,Conn.(10) S15 | 5.35 | 6.80 | 7.40 | 9.35 | 11.60 |
| Bristol,Conn. W1 | ... | ... | 7.70 | 9.65 | ... |
| Carnegie,Pa. S18 | ... | 6.80 | 7.40 | 9.35 | 11.60 |
| Cleveland A7 | 4.65 | 6.45 | 7.40 | 9.35 | 11.60 |
| Dearborn,Mich. D3 | 5.60 | 7.05 | 7.65 | ... | ... |
| Detroit D2 | 5.60 | 6.65 | 7.25 | ... | ... |
| Dover,O. G6 | 5.50 | 6.80 | 7.40 | 9.35 | 11.60 |
| FranklinPark,Ill. T6 | 5.00 | 6.60 | 7.55 | 9.50 | 11.80 |
| Harrison,N.J. C18 | ... | ... | 7.70 | 9.65 | 11.90 |
| Mattapan,Mass. T6 | 5.50 | 6.75 | 7.70 | 9.65 | 11.90 |
| NewBritn.,Conn.(10) S15 | 5.35 | 6.80 | 7.40 | 9.35 | 11.60 |
| NewCastle,Pa. B4 | 5.35 | 6.80 | 7.40 | 9.35 | ... |
| NewCastle,Pa. E5 | 5.50 | 6.80 | 7.40 | 9.35 | 11.60 |
| NewHaven,Conn. D2 | 5.85 | 6.75 | 7.35 | ... | ... |
| NewYork W3 | ... | 7.10 | 7.70 | 9.65 | 11.90 |
| Pawtucket,R.I. N8: Cleve.orPitts.Base | ... | 6.80 | 7.40 | 9.35 | 11.60 |
| Worcester,Mass.,Base | 5.85 | 7.10 | 7.70 | 9.65 | 11.90 |
| Sharon,Pa. S3 | 5.35 | 6.80 | 7.40 | 9.35 | 11.60 |
| Trenton,N.J. R5 | ... | 7.10 | 7.70 | 9.65 | 11.90 |
| Wallingford,Conn. W2 | 5.85 | 6.75 | 7.35 | 9.30 | 11.60 |
| Weirton,W.Va. W6 | 5.35 | 6.80 | 7.40 | 9.35 | 11.60 |
| Worcester,Mass. A7 | 4.95 | 6.75 | 7.70 | 9.65 | 11.90 |
| Worcester,Mass. T6 | 5.50 | 6.75 | 7.70 | 9.65 | 11.90 |
| Youngstown C8 | ... | 6.80 | 7.40 | 9.35 | 11.60 |
| **Spring Steel (Tempered)** | | | | | |
| Trenton,N.J. R5 | ... | ... | 10.30 | 12.50 | 15.35 |
| Harrison,N.J. C18 | ... | ... | 10.30 | 12.50 | 15.35 |
| NewYork W3 | ... | ... | 10.30 | 12.50 | 15.35 |

| TIN PLATE, Electrolytic (Base Box) | 0.25-lb | 0.50 lb | 0.75lb |
|---|---|---|---|
| Aliquippa,Pa. J5 | $7.15 | $7.40 | $7.80 |
| Fairfield,Ala. T2 | 7.25 | 7.50 | 7.90 |
| Gary,Ind. U5 | 7.15 | 7.40 | 7.80 |
| GraniteCity,Ill. G4 | 7.35 | 7.60 | 8.00 |
| Ind.Harbor,Ind. I-2, Y1 | 7.15 | 7.40 | 7.80 |
| Irvin,Pa. U5 | 7.15 | 7.40 | 7.80 |
| Niles,O. R2 | 7.15 | 7.40 | 7.80 |
| Pittsburg,Calif. C11 | 7.90 | 8.15 | 8.55 |
| SparrowsPoint,Md. B2 | 7.25 | 7.50 | 7.90 |
| Weirton,W.Va. W6 | 7.15 | 7.40 | 7.80 |
| Yorkville,O. W10 | 7.15 | 7.40 | 7.80 |

| SHEETS, SILICON, H.R. or C.R.(22 Ga.) COILS (Cut Lengths ½c lower) | Field | Armature | Electric | Motor | Dynamo |
|---|---|---|---|---|---|
| BeechBottom W10 (cut-lengths) | ... | ... | 7.25 | 8.50 | 9.30 |
| Brackenridge,Pa. A4 | ... | ... | 7.75 | 9.00 | 9.80 |
| GraniteCity,Ill.G4 (cut lengths) | ... | ... | 7.95 | 9.20 | ... |
| Ind.Harbor,Ind. I-2 | 6.95 | 7.25 | (34) | ... | ... |
| Mansfield,O. E6 (cut lengths) | 7.10 | 7.25 | 7.75 | 9.00 | 9.80 |
| Niles,O. N12 (cut lengths) | ... | 6.75 | 7.25 | ... | ... |
| Vandergrift,Pa. U5 | ... | 7.25 | 7.75 | 9.00 | 9.80 |
| Warren,O. R2 | 6.95 | 7.25 | 7.75 | 9.00 | 9.80 |
| Zanesville,O. A10 | ... | 7.25 | 7.75 | 9.00 | 9.80 |

| SHEETS, SILICON (22 Ga. Base) Coils (Cut Lengths ½c lower) Transformer Grade | 72 | 65 | 58 | 52 |
|---|---|---|---|---|
| BeechBottom W10 (cut lengths) | 9.85 | 10.40 | 11.10 | 11.90 |
| Brackenridge,Pa. A4 | 10.35 | .... | .... | .... |
| Vandergrift,Pa. U5 | 10.35 | 10.90 | 11.60 | 12.40 |
| Warren,O. R2 | 10.35 | .... | .... | .... |
| Zanesville,O. A10 | 10.35 | 10.90 | 11.60 | 12.40 |

| H.R. or C.R. COILS AND CUT LENGTHS, SILICON (22 Ga.) | T-100 | T-90 | T-80 | T-73 |
|---|---|---|---|---|
| Butler,Pa. A10 (C.R.) | .... | .... | 14.75 | 15.25 |
| Vandergrift,Pa. U5 | 12.90 | 13.75 | 14.75 | 15.25 |

## Key to Producers

A1 Acme Steel Co.
A3 Alan Wood Steel Co.
A4 Allegheny Ludlum Steel
A7 American Steel & Wire
A8 Anchor Drawn Steel Co.
A9 Angell Nail & Chaplet
A10 Armco Steel Corp.
A11 Atlantic Steel Co.
A13 American Cladmetals Co.

B1 Babcock & Wilcox Tube
B2 Bethlehem Steel Co.
B3 Beth. Pac. Coast Steel
B4 Blair Strip Steel Co.
B5 Bliss & Laughlin Inc.
B6 Bolardi Steel Corp.
B8 Braeburn Alloy Steel
B11 Buffalo Bolt Co.
B12 Buffalo Steel Co.
B14 A. M. Byers Co.

C1 Calstrip Steel Corp.
C2 Calumet Steel Div. Borg-Warner Corp.
C4 Carpenter Steel Co.
C5 Central Iron & Steel Div. Barium Steel Corp.
C7 Cleve. Cold Rolling Mills
C8 Cold Metal Products Co.
C9 Colonial Steel Co.
C10 Colorado Fuel & Iron
C11 Columbia Steel Co.
C12 Columbia Steel & Shaft
C13 Columbia Tool Steel Co.
C14 Compressed Steel Shaft
C16 Continental Steel Corp.
C17 Copperweld Steel Co.
C18 Crucible Steel Co.
C19 Cumberland Steel Co.
C20 Cuyahoga Steel & Wire
C22 Claymont Steel Corp.

D2 Detroit Steel Corp.
D3 Detroit Tube & Steel
D4 Disston & Sons, Henry
D6 Driver Harris Co.
D7 Dickson Weatherproof Nail Co.

E1 Eastern Gas&Fuel Assoc.
E2 Eastern Stainless Steel
E4 Electro Metallurgical Co.
E5 Elliott Bros. Steel Co.
E6 Empire Steel Corp.

F2 Firth Sterling Steel
F3 Fitzsimons Steel Co.
F4 Follansbee Steel Corp.
F5 Franklin Steel Div. Borg-Warner Corp.
F6 Fretz-Moon Tube Co.
F7 Ft. Howard Steel & Wire

G1 Geneva Steel Co.
G2 Globe Iron Co.
G3 Globe Steel Tubes Co.
G4 Granite City Steel Co.
G5 Great Lakes Steel Corp.
G6 Greer Steel Co.

H1 Hanna Furnace Corp.

I-1 Igoe Bros. Inc.
I-2 Inland Steel Co.
I-3 Interlake Iron Corp.
I-4 Ingersoll Steel Div., Borg-Warner Corp.

J1 Jackson Iron & Steel Co
J3 Jessop Steel Co.
J4 Johnson Steel & Wire Co
J5 Jones & Laughlin Steel
J6 Joslyn Mfg. & Supply
J7 Judson Steel Corp.
J8 Jersey Shore Steel Co.

K1 Kaiser Steel Corp.
K2 Keokuk Electro Metals
K3 Keystone Drawn Steel
K4 Keystone Steel & Wire

L1 Laclede Steel Co.
L2 LaSalle Steel Co.
L3 Latrobe Electric Steel
L5 Lockhart Iron & Steel
L6 Lone Star Steel Co.
L7 Lukens Steel Co.

**RIP, Hot-Rolled Ingot Iron**

shland,Ky. (8) A10 ...3.75
arren,O. R2 .....4.10

**RIP, Cold-Rolled Ingot Iron**

arren,O. R2 .....5.25

**GHT COOPERAGE HOOP**

lanta A11 .....4.05
verdale,Ill. A1 .....3.90
aron,Pa. S3 .....4.15
oungstown U5 .....3.75

**RE, Merchant Quality**

| | to 8 gage) | An'ld Galv. |
|---|---|---|
| abama City | R2.5.70 | 5.95 |
| iquippa | J5 .... 5.70 | 6.15 |
| lanta | A11 .... 5.95 | 6.40 |
| rtonville(19) | K4 5.70 | 6.15 |
| ffalo | W12 .... 4.85 | ... |
| eveland | A7 .... 5.70 | 6.15 |
| awfordsville | M8 5.95 | 6.40 |
| nora,Pa. | A7 .. 5.70 | 6.15 |
| luth,Minn. | A7 . 5.70 | 6.15 |
| irfield | T2 .... 5.70 | 6.15 |
| uston, Tex. | S5. 6.10 | 6.55 |
| nstown | B2 ... 5.70 | 6.15 |
| iet, Ill. | A7 .... 5.70 | 6.15 |
| nsasCy,Mo. | S5. 6.30 | 6.75 |
| komo | C16 .... 5.80 | 6.05 |
| sAngeles | B3 .. 6.65 | ... |
| nnequa | C10 ... 5.95 | 6.45 |
| nessen | P7 .... 5.95 | 6.40 |
| lmer | W12 .... 5.15 | ... |
| ts,Calif. | C11.. 6.65 | 6.80 |
| tsmth.(18) | P12 . 6.10 | 6.60 |
| nkin | A7 ..... 5.70 | 6.15 |
| Chicago | R2 .. 5.70 | 5.95 |
| S.Fran. | C10 .. 6.65 | 7.10 |
| arrowsPt. | B2.. 5.80 | 6.25 |
| erling,Ill. | (1)N15 5.70 | 6.15 |
| uthers,O. | Y1 . 5.70 | 6.15 |
| rrance,Cal. | C11 6.65 | ... |
| rcester | A7 .... 6.00 | 6.45 |

| RE (16 gage) | | An'ld Galv. Stone | Stone |
|---|---|---|---|
| iquippa | J5 .... | 10.15 | 12.15 |
| rtonville(1) | K4.. | 10.25 | 11.95 |
| eveland | A7 .... | 10.25 | 12.15 |
| awfrdsvlle | M8.. | 10.30 | 12.00 |
| storia,O. | S1 ... | 10.40 | 13.00 |
| nstown | B2 ... | 10.25 | 12.15 |
| komo | C16 .... | 10.25 | 11.95 |
| nnequa | C10 ... | 10.40 | 12.40 |
| lmer,Mass. | C12 | 10.25 | 12.15 |
| ts.Cal. | C11 .. | 10.60 | 12.50 |
| tsmth. | (18) P12. | 10.55 | 12.30 |
| arrowsPt. | B2.. | 10.35 | 12.25 |
| ukegan | A7 ... | 10.25 | 12.15 |

**PE WIRE**

| | (A) | (B) |
|---|---|---|
| con Ill. | L1 .... 8.65 | 8.90 |
| rtonville,Ill. | K4 8.55 | 8.80 |
| ffalo | W12 .... 8.55 | 8.80 |
| storia,O. | S1 ... 8.85 | 9.10 |
| nstown,Pa. | B2 8.55 | 8.80 |
| nessen,Pa. | P16 8.55 | 8.80 |
| nessen,Pa. | P7 . 8.80 | 9.05 |
| lmer,Mass. | W12 8.85 | 9.10 |
| rtsmouth,O. | P12 8.55 | 8.80 |
| ebling,N.J., | R5. 8.85 | 9.10 |
| arrowsPt. | B2 .. 8.65 | 8.90 |
| uthers,O. | Y1 .. 8.55 | 8.80 |
| rcester | J4, T6. 8.85 | 9.10 |

(A) Plow and Mild Plow.
(B) Improved Plow.

**WIRE, Manufacturers Bright, Low Carbon**

AlabamaCity,Ala. R2 ..4.85
Aliquippa,Pa. J5 .....4.85
Atlanta A11 .....5.10
Alton,Ill. L1 .....5.05
Bartonville,Ill.(1) K4 ...4.85
Buffalo W12 .....4.85
Chicago W13 .....5.10
Cleveland A7, C20 .....4.85
Crawfordsville,Ind. M8..5.10
Donora,Pa. A7 .....4.85
Duluth,Pa. A7 .....4.85
Fairfield,Ala. T2 .....4.85
Fostoria,O.(24) S1 ....5.35
Houston S5 .....5.25
Johnstown,Pa. B2 .....4.85
Joliet, Ill. A7 .....4.85
KansasCity, Mo. S5 ....5.45
Kokomo,Ind. C16 .....4.95
Los Angeles B3 .....5.80
Minnequa,Colo. C10 ...5.10
Monessen,Pa. P7 .....5.10
Newark, 6-8 ga. I-1 ...5.50
No.Tonawanda B11 ....4.85
Palmer, Mass W12 .....5.15
Pittsburg, Calif. C11 ....5.80
Portsmouth,O. P12 .....5.25
Rankin,Pa. A7 .....4.85
So.Chicago,Ill. R2 .....4.85
So. SanFrancisco C10 ...5.80
SparrowsPoint,Md. B2 ..4.95
Sterling,Ill.(1) N15 ....4.85
Struthers,O. Y1 .....4.85
Torrance,Calif. C11 ....5.80
Waukegan,Ill. A7 .....4.85
Worcester,Mass. A7, T6..5.15

**WIRE, Cold-Rolled Flat**

Anderson,Ind. G6 .....6.20
Buffalo W12 .....6.35
Cleveland A7 .....5.85
Crawfordsville,Ind. M8..6.20
Detroit D2 .....6.20
Dover,O. G6 .....6.20
Fostoria,O. S1 .....6.00
Kokomo,Ind. C16 .....5.70
Franklin Park,Ill. T6 ...6.20
Massillon,O. R8 .....5.85
Monessen,Pa. P16 .....5.85
Monessen,Pa. P7 .....6.10
NewHaven,Conn. D2 ...6.50
Pawtucket,R.I.(12) N8..6.85
Trenton,N.J. R5 .....6.15
Worcester A7 .....6.15
Worcester T6 .....6.50
Worcester W12 .....6.65

**WIRE, Fine & Weaving(8" Coils)**

Bartonville,Ill.(1) K4 ..8.90
Buffalo W12 .....8.90
Chicago W13 .....8.90
Cleveland A7 .....8.90
Crawfordsville, Ind. M8..8.95
Fostoria,O. S1 .....8.90
Johnstown,Pa. B2 .....8.90
Kokomo,Ind. C16 .....8.90
Monessen,Pa. P16 .....8.90
Palmer,Mass W12 .....9.20
Portsmouth,O. P12 ....8.90
Roebling,N.J. R5 .....9.20
Waukegan,Ill. A7 .....8.90
Worcester,Mass. A7, T6.9.20

**WIRE, Galv'd ACSR for Cores**

Bartonville,Ill. K4 .....8.50
Monessen,Pa. P16 .....8.50
Roebling,N.J. R5 .....8.80
SparrowsPoint,Md. B2 ..8.60
Johnstown,Pa. B2 .....8.50

**WIRE, Tire Bead**

Bartonville,Ill(1) K4...10.90
Monessen,Pa. P16 ....11.40
Roebling,N.J. R5 .....11.55

**WIRE, MB Spring, High Carbon**

Aliquippa,Pa. J5 .....6.25
Alton,Ill. L1 .....6.45
Bartonville,Ill.(1) K4 ...6.25
Buffalo W12 .....6.25
Cleveland A7 .....6.25
Donora,Pa. A7 .....6.25
Duluth A7 .....6.25
Fostoria,O. S1 .....6.25
Johnstown,Pa. B2 .....6.25
LosAngeles B3 .....7.20
Milbury,Mass.(12) N6 ..8.05
Monessen,Pa. P7, P16...6.25
Palmer,Mass. W12 ....6.55
Pittsburg,Calif. C11 ....7.20
Roebling,N.J. R5 .....6.55
Portsmouth,O. P12 ....6.25
So.Chicago,Ill. R2 .....6.25
SoSanFrancisco C10 ...7.20
SparrowsPoint,Md. B2..6.35
Struthers,O. Y1 .....6.25
Trenton,N.J. A7 .....6.55
Waukegan,Ill. A7 .....6.25
Worcester A7, T6, W12..6.55
Worcester,Mass J4 .....6.75

**WIRE, Upholstery Spring**

Aliquippa,Pa. J5 .....5.90
Alton,Ill. L1 .....6.10
Buffalo W12 .....5.90
Cleveland A7 .....5.90
Donora,Pa. A7 .....5.90
Duluth,Minn. A7 .....5.90
Johnstown,Pa. B2 .....5.90
LosAngeles B3 .....6.85
Monessen,Pa. P7, P16 ..5.90
NewHaven,Conn. A7 ....6.20
Palmer,Mass. W12 .....6.20
Pittsburg,Calif. C11 ....6.85
Portsmouth,O. P12 ....5.90
Roebling,N.J. R5 .....6.20
So.Chicago,Ill. R2 .....5.90
So.SanFrancisco C10 ....6.85
SparrowsPoint,Md. B2 ..6.00
Torrance,Calif. C11 ....6.85
Trenton,N.J. A7 .....6.20
Waukegan,Ill. A7 .....5.90
Worcester,Mass. A7 ....6.20

**WOVEN FENCE, 9-15½ Ga.**

| | Col. |
|---|---|
| AlabamaCity,Ala. R2 | ...126 |
| Ala.City,Ala.,17-18ga.R2 | 213 |
| Aliquippa,Pa.9-14½ga.J5 | 130 |
| Atlanta A11 | ...133 |
| Bartonville,Ill.(19) K4 | ...130 |
| Crawfordsville,Ind. M8 | .132 |
| Donora,Pa. A7 | .....130 |
| Duluth,Minn. A7 | .....130 |
| Fairfield,Ala. T2 | .....130 |
| Houston,Tex. S5 | .....138 |
| Johnstown,Pa. B2 | .....130 |
| Johnstown,17ga.,6" B2 | ..204 |
| Johnstown,17ga.,4" B2 | ..207 |
| Joliet,Ill. A7 | .....130 |
| KansasCity,Mo. S5 | .....142 |
| Kokomo,Ind. C16 | .....132 |
| Minnequa,Colo. C10 | ....138 |
| Monessen,Pa. P7 | .....135 |
| Pittsburg,Calif. C11 | ....153 |
| Portsmouth,O.(18) P12 | ..137 |
| Rankin,Pa. A7 | .....130 |
| So.Chicago,Ill. R2 | .....126 |
| Sterling,Ill.(1) N15 | .....130 |

**FENCE POSTS**

| | |
|---|---|
| ChicagoHts.,Ill. C2 | .....140 |
| Duluth,Minn. A7 | .....125 |
| Franklin,Pa. F5 | .....140 |
| Huntington,W.Va. W7 | ....140 |
| Johnstown,Pa. B2 | .....140 |
| Marion,O. P11 | .....140 |
| Minnequa,Colo. C10 | ....130 |
| Moline,Ill. R2 | .....136 |
| So.Chicago R2 | .....140 |
| Tonawanda,N.Y. B12 | ...140 |
| Williamsport,Pa. S19 | ...150 |

**WIRE, Barbed**

| | Col. |
|---|---|
| AlabamaCity,Ala. R2 | ....136 |
| Aliquippa,Pa. J5 | .....140 |
| Atlanta A11 | .....143 |
| Bartonville,Ill.(19) K4 | ..143 |
| Crawfordsville,Ind. M8.. | 145 |
| Donora,Pa. A7 | .....140 |
| Duluth,Minn. A7 | .....140 |
| Fairfield,Ala. T2 | .....140 |
| Houston,Tex. S5 | .....148 |
| Johnstown,Pa. B2 | .....140 |
| Joliet,Ill. A7 | .....140 |
| KansasCity,Mo. S5 | .....152 |
| Kokomo,Ind. C16 | .....142 |
| Minnequa,Colo. C10 | ....146 |
| Monessen,Pa. P7 | .....145 |
| Pittsburg,Calif. C11 | ....160 |
| Portsmouth,O.(18) P12.. | 147 |
| Rankin,Pa. A7 | .....140 |
| So.Chicago,Ill. R2 | .....136 |
| So.SanFran.,Calif. C10 | ..160 |
| SparrowsPoint,Md. B2 | ..142 |
| Sterling,Ill.(1) N15 | ....140 |

**BALE TIES, Single Loop**

| | Col. |
|---|---|
| AlabamaCity,Ala. R2 | ...123 |
| Atlanta A11 | .....126 |
| Bartonville,Ill.(19) K4 | ..123 |
| Crawfordsville,Ind. M8 | ..132 |
| Donora,Pa. A7 | .....123 |
| Duluth,Minn. A7 | .....123 |
| Fairfield,Ala. T2 | .....123 |
| Joliet,Ill. A7 | .....123 |
| KansasCity,Mo. S5 | .....135 |
| Kokomo,Ind. C16 | .....125 |
| Minnequa,Colo. C10 | ....128 |
| Pittsburg,Calif. C11 | ....147 |
| So.Chicago,Ill. R2 | .....123 |
| So.SanFran.,Calif. C10 | ..147 |
| SparrowsPoint,Md. B2 | ..125 |
| Sterling,Ill.(1) N15 | ....123 |

**NAILS & STAPLES, Non-Stock**

AlabamaCity,Ala. R2 ...6.10
Bartonville,Ill.(19) K4 ..5.95
Crawfordsville,Ind. M8 ..6.30
Donora,Pa. A7 .....5.95
Duluth,Minn. A7 .....5.95
Johnstown,Pa. B2 .....5.95
Joliet,Ill. A7 .....5.95
Kokomo,Ind. C16 .....6.05
Minnequa,Colo. C10 ....6.20
Pittsburg,Calif. C11 ....6.90
Portsmouth,O. P12 ....6.25
Rankin,Pa. A7 .....5.95
So.Chicago,Ill. R2 .....6.10
SparrowsPoint,Md. B2 ..6.05
Sterling,Ill.(1) N15 ....5.65
Worcester,Mass. A7 ....6.25

**NAILS, Cut (100 lb keg)**

To dealers (33)
Conshohocken,Pa. A3 ..$7.35
Wheeling,W.Va. W10 ...7.35

**NAILS & STAPLES, Stock**

| To dealers & mfrs. (1) | Col. |
|---|---|
| AlabamaCity,Ala. R2 | ...118 |
| Aliquippa,Pa.(13) J5 | ...118 |
| Atlanta A11 | .....121 |
| Bartonville,Ill.(19) K4 | ..118 |
| Chicago,Ill. W13 | .....118 |
| Cleveland A9 | .....125 |
| Crawfordsville,Ind. M2 | ..122 |
| Donora,Pa. A7 | .....118 |
| Duluth,Minn. A7 | .....118 |
| Fairfield,Ala. T2 | .....118 |
| Galveston,Tex. D7 | .....126 |
| Houston,Tex. S5 | .....126 |
| Johnstown,Pa. B2 | .....118 |
| Joliet,Ill. A7 | .....118 |
| KansasCity,Mo. S5 | .....130 |
| Kokomo,Ind. C16 | .....120 |
| Minnequa,Colo. C10 | ....123 |
| Monessen,Pa. P7 | .....124 |
| Pittsburg,Calif. C11 | ....137 |
| Portsmouth,O. P12 | .....124 |
| Rankin,Pa. A7 | .....118 |
| So.Chicago,Ill. R2 | .....118 |
| SparrowsPoint,Md. B2 | ..120 |
| Sterling,Ill.(1) N15 | ....118 |
| Torrance,Calif. C11 | ....138 |
| Worcester,Mass. A7 | ....124 |

**STANDARD TRACK SPIKES**

Ind.Harbor,Ind. I-2, Y1..6.15
KansasCity,Mo. S5 ....6.40
Lebanon,Pa. B2 .....6.15
Minnequa,Colo. C10 ....6.15
Pittsburgh J5 .....6.15
Seattle B3 .....6.65
So.Chicago,Ill. R2 .....6.15
Struthers,O. Y1 .....6.15
Youngstown R2 .....6.15

**TRACK BOLTS (20) Treated**

KansasCity,Mo. S5 .....9.85
Lebanon,Pa.(32) B2 ....9.85
Minnequa,Colo. C10 ....9.85
Pittsburgh O3, P14 ....9.85
Seattle B3 .....10.35

**TIE PLATES**

Fairfield,Ala. T2 .....4.50
Gary,Ind. U5 .....4.50
Ind.Harbor,Ind. I-2 ....4.50
Lackawanna,N.Y. B2 ....4.50
Minnequa,Colo. C10 ....4.50
Pittsburg,Calif. C11 ....4.65
Seattle B3 .....4.65
Steelton,Pa. B2 .....4.50
Torrance,Calif. C11 ....4.65

**JOINT BARS**

Bessemer,Pa. U5 .....4.70
Fairfield,Ala. T2 .....4.70
Ind.Harbor,Ind. I-2 ....4.70
Joliet,Ill. U5 .....4.70
Lackawanna,N.Y. B2 ....4.70
Minnequa,Colo. C10 ....4.70
Steelton,Pa. B2 .....4.70

**AXLES**

Ind.Harbor,Ind. S18 ...5.60
Johnstown,Pa. B2 .....5.60

| RAILS | Std. No. 1 | Std. No. 2 | Std. All No. 2 | Tee Rails 60 lb Under |
|---|---|---|---|---|
| Bessemer,Pa. U5 | 3.60 | 3.50 | 3.55 | 4.00 |
| Ensley,Ala. T2 | 3.60 | 3.50 | ... | 4.00 |
| Fairfield,Ala. T2 | ... | ... | ... | 4.00 |
| Gary,Ind. U5 | 3.60 | 3.50 | 3.55 | ... |
| Huntington,W.Va. W7 | ... | ... | ... | 5.00 |
| Ind.Harbor,Ind. I-2 | 3.60 | 3.50 | 3.55 | ... |
| Johnstown,Pa. B2 | ... | ... | ...(16) | 4.00 |
| Lackawanna B2 | 3.60 | 3.50 | ... | 4.00 |
| Minnequa,Colo. C10 | 3.60 | 3.50 | ... | 4.50 |
| Steelton,Pa. B2 | 3.60 | 3.50 | ... | ... |
| Williamsport,Pa. S19 | ... | ... | ... | 4.75 |

## TOOL STEEL

—Grade by Analysis—

| Grade | $ per lb | W | Cr | V | Co | Mo | $ per lb |
|---|---|---|---|---|---|---|---|
| Reg. Carbon | 0.230 | 20.25 | 4.25 | 1.6 | 12.25 | .. | 3.535-3.675 |
| Extra Carbon | 0.270 | 19 | 4 | 2 | 7 | .. | 2.460 |
| Spec. Carbon. | 0.325 | 18.25 | 4.25 | 1 | 4.75 | .. | 2.125 |
| Oil Hardening. | 0.350 | 18 | 4 | 2 | 9 | .. | 2.445-2.450 |
| 5%CrHotWrk | 0.350 | 13.5 | 4 | 3 | .. | .. | 1.60¼ |
| Hi-Carbon-Cr. | 0.635 | 6.4 | 4.5 | 1.9 | .. | 5 | 0.96-0.965 |
| 18W,4Cr,1V | 1.505 | 6 | 4 | 3 | .. | 6 | 1.190 |
| 18W,4Cr,2V | 1.650 | 1.5 | 4 | 1 | .. | 8.5 | 0.810 |

Tool steel producers include: A4, A8, B2, B8, C4, C9, C13, C18, D4, F2, J3, L3, M14, S8, U4, V2, V3.

**Key to Producers**

MoLouth Steel Corp.
Mahoning Valley Steel

Medart Co.
Mercer Tube & Mfg. Co.
Mid-States Steel & Wire
Midvale Co.
2 Moltrup Steel Products
3 Monarch Steel Co.
4 McInnes Steel Co.

National Supply Co.
National Tube Co.
Nelsen Steel & Wire Co.
NewEng-HighCarb.,Wire
Newman-Crosby Steel
2 Niles Rolling Mill Co.
4 Nrthwst. Steel Roll. Mills
5 Northwestern S.&W. Co.
6 New Delphos Mfg. Co.

Oliver Iron & Steel Corp.
Oregon Steel Mills

Pacific States Steel Corp.
Pacific Tube Co.
Phoenix Iron & Steel Co.
Pilgrim Drawn Steel
Pittsburgh Coke & Chem.
Pittsburgh Steel Co.
Pittsburgh Tube Co.
P11 Pollak Steel Co.
P12 Portsmouth Division, Detroit Steel Corp.
P13 Precision Drawn Steel
P14 Pitts. Screw & Bolt Co.
P15 Pittsburgh Metallurgical
P16 Page Steel & Wire Div., Amer. Chain & Cable
P17 Plymouth Steel Co.

R1 Reeves Steel & Mfg. Co.
R2 Republic Steel Corp.
R3 Rhode Island Steel Corp.
R5 Roebling's Sons, John A.
R6 Rome Strip Steel Co.
R7 Rotary Electric Steel Co.
R8 RelianceDiv.,EatonMfg.

S1 Seneca Wire & Mfg. Co.
S3 Sharon Steel Corp.
S5 Sheffield Steel Corp.
S6 Shenango Furnace Co.
S7 Simmons Co.
S8 Simonds Saw & Steel Co.
S9 Sloss-Sheffield, S.&I. Co.
S13 Standard Forgings Corp.
S14 Standard Tube Co.
S15 Stanley Works
S16 Struthers Iron & Steel
S17 Superior Drawn Steel Co.
S18 Superior Steel Corp.
S19 Sweet's Steel Co.
S20 Southern States Steel

T2 Tenn. Coal, Iron & R.R.
T3 Tenn. Prod. & Chem.
T4 Texas Steel Co.
T5 Thomas Steel Co.
T6 Thompson Wire Co.
T7 Timken Roller Bearing
T9 Tonawanda Iron Div. Am. Rad. & Stan. San.

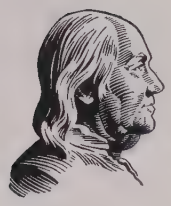
U1 Ulster Iron Works
U4 Universal Cyclops Steel
U5 United States Steel Co.

V2 Vanadium-Alloys Steel
V3 Vulcan Crucible Steel Co.

W1 Wallace Barnes Co.
W2 Wallingford Steel Co.
W3 Washburn Wire Co.
W4 Washington Steel Corp.
W6 Weirton Steel Co.
W7 W. Va. Steel & Mfg. Co.
W8 West.Auto.Mach.Screw
W9 Wheatland Tube Co.
W10 Wheeling Steel Corp.
W12 Wickwire Spencer Steel Div., Colo. Fuel & Iron
W13 Wilson Steel & Wire Co.
W14 Wisconsin Steel Div. International Harvester
W15 Woodward Iron Co.
W18 Wyckoff Steel Co.

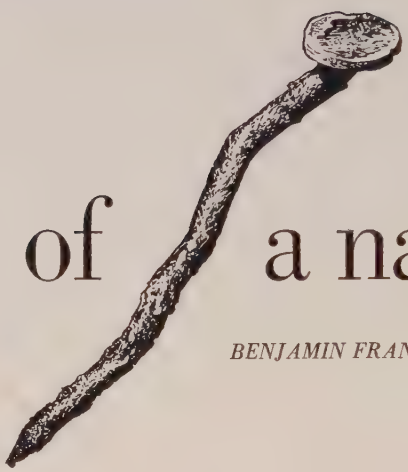
Y1 YoungstownSheet&Tube

(1) Chicago base.
(2) Angles, flats, bands.
(3) Merchant. (4) Reinforcing.
(5) Philadelphia del.
(6) Chicago or Birm. base.
(7) To jobbers, 3 cols. lower.
(8) 16 gage and heavier.
(9) 6 in. and narrower.
(10) Pittsburgh base.
(11) Cleveland & Pittsburgh base.
(12) Worcester, Mass. base.
(13) Add 0.50c for 17 Ga. & heavier.
(14) Also wide flange beams.
(15) ½" and thinner.
(16) 40 lb and under.
(17) Flats only.
(18) To dealers.
(19) Chicago & Pittsburgh base.
(20) Deduct 0.25c for untreated.
(21) New Haven, Conn. base.
(22) Del. San Fran. Bay area.
(23) 28 Ga. 36" wide
(24) Deduct 0.20c, finer than 15 Ga.
(25) Bar mill bands.
(26) Reinforcing, mill lengths, to fabricators; to consumers, 5.60c.
(27) Bar mill sizes.
(28) Bonderized.
(29) Subject to 10% increase.
(30) Sheared: add 0.35c for universal mill.
(31) Not annealed.
(32) Rd. edge or square edge.
(33) To jobbers, deduct 20 cents.
(34) 7.25c for cut lengths.
(35) 72" and narrower.
(36) 54" and narrower.
(37) 15 gage & lighter: 60" & narrower.
(38) 14 gage & lighter: 48" & narrower.
(39) 48" and narrower.
(40) Lighter than 0.035"; 0.035" and heavier, 0.25c higher.



*"For the want of a nail the shoe was lost,*
*For the want of a shoe the horse was lost,*
*For the want of a horse the rider was lost,*
*For the want of a rider the battle was lost,*
*For the want of a battle the Kingdom was lost . . .*

# and all for want of a nail"



*BENJAMIN FRANKLIN, "Poor Richard," 175*

The fate of nations often hangs on little things. Take this rusty old nail. It symbolizes thousands of tons of worn-out machines and broken parts lying useless in our plants, factories, farms, and homes—scrap steel desperately needed today by our steel mills.

You can help make this nail, and all the other scrap you can collect, go to work again . . . in new steel for ships, tanks, and guns required for defense purposes.

So survey your plant now for every last bit of scrap. Then get it to your scrap dealer promptly. This will not only help assure the nation of the arms needed to preserve our freedom, but it will also mean more steel for your own products tomorrow.

*ELECTRO METALLURGICAL COMPANY, a Division of Union Carbide and Carbon Corporation*

## STANDARD PIPE, T. & C.

| TWELD e List es Per Ft | Pounds Per Ft | Carload Discounts from List, % —Black— A | B | C | —Galvanized— D | E | F |
|---|---|---|---|---|---|---|---|
| 5.5c | 0.24 | 34.0 | 32.0 | 29.0 | 1.5 | +0.5 | +3.5 |
| 6.0 | 0.42 | 28.5 | 26.5 | 23.5 | +1.0 | +3.0 | +6.0 |
| 6.0 | 0.57 | 23.5 | 21.5 | 18.5 | +7.0 | +9.0 | +12.0 |
| 8.5 | 0.85 | 36.0 | 34.0 | 35.0 | 14.0 | 12.0 | 13.0 |
| 11.5 | 1.18 | 39.0 | 37.0 | 38.0 | 18.0 | 16.0 | 17.0 |
| 17.0 | 1.68 | 41.5 | 39.5 | 40.5 | 21.5 | 19.5 | 20.5 |
| 23.0 | 2.28 | 42.0 | 44.0 | 41.0 | 22.0 | 24.0 | 21.0 |
| 27.5 | 2.78 | 42.5 | 41.5 | 41.5 | 23.0 | 21.5 | 22.0 |
| 37 | 3.68 | 43.0 | 41.0 | 42.0 | 23.5 | 21.5 | 22.5 |
| 58.5 | 5.82 | 43.5 | 41.5 | 42.5 | 24.0 | 22.0 | 23.0 |
| 76.5 | 7.62 | 43.5 | 41.5 | 42.5 | 24.0 | 22.0 | 23.0 |

olumn A: Etna, Pa. N2; Butler, Pa. ⅛-⅜", F6; Bend, W. Va., 3½ points lower on ⅛", 1½ points lower on and 2 points lower on ⅝", W10; Sharon, Pa. M6, 1 t higher on ⅛", 2 points lower on ¼" and ⅜". Following make ½" and larger: Lorain, O., N3; Youngstown and 36¼% on 3½" and 4"; Youngstown Y1; Aliquippa, J5; Fontana, Calif. K1 quotes 11½ points lower on and larger continuous weld and 24% on 3½" and 4". umns B & E: Sparrows Point, Md. B2.

umns C & F: Indiana Harbor, Ind., ½" through 3", Y1; n, Ill., 2 points lower discount L1.

umn D: Butler, Pa. F6, ⅛-⅜"; Benwood, W. Va. W10, pt plus 3½% on ⅛", plus 2½% on ¼", plus 9% on Sharon, Pa. M6, plus 0.5 on ⅛", 1 point lower on ¾", 1½ points lower on 1" and 1¼", 2 points lower 1½", 2", 2½" and 3". Following quote only on ½" and er: Lorain, O. N3; Youngstown R2, and 16½% on 3½" 4"; Youngstown Y1. Aliquippa, Pa. J5 quotes 1 point r on ¾", 2 points lower on 1", 1½ points lower on , 2 points lower on 1½" and 2", 1½ points lower on and 3"; Etna, Pa. N2 and 18½% on 3½" and 4".

| MLESS AND CTRIC WELD o List es Per Ft | Pounds Per Ft | Carload Discounts from List, % Seamless Black A | Galv. B | Elec. Weld Black C | Galv. D |
|---|---|---|---|---|---|
| 37.0c | 3.68 | 29.5 | 9.5 | 29.5 | 9.5 |
| 58.5 | 5.82 | 32.5 | 12.5 | 32.5 | 12.5 |
| 76.5 | 7.62 | 32.5 | 12.5 | 32.5 | 12.5 |
| 92.0 | 9.20 | 34.5 | 14.5 | 34.5 | 14.5 |
| $1.09 | 10.89 | 34.5 | 14.5 | 34.5 | 14.5 |
| 1.48 | 14.81 | 37.0 | 17.0 | 37.0 | 17.0 |
| 1.92 | 19.18 | 37.0 | 17.0 | 37.0 | 17.0 |

olumn A: Aliquippa J5; Ambridge N2; Lorain N3; ngstown Y1.
olumn B: Aliquippa J5 quotes 1½ pts lower on 2", 1 pt r on 2½-6 in.; Lorain N3; Youngstown Y1.
olumns C & D: Youngstown R2.

## BOILER TUBES

t base c.l. prices, dollars per 100 ft. mill; minimum thickness, cut lengths 10 to 24 ft, inclusive.

| | B.W. Ga. | —Seamless— H.R. | C.D. | Elec. Weld H.R. | C.D. |
|---|---|---|---|---|---|
| ..... | 13 | 13.45 | 16.47 | 15.36 | 15.36 |
| ..... | 13 | 16.09 | 19.71 | 15.61 | 18.19 |
| ..... | 13 | 17.27 | 21.15 | 17.25 | 20.30 |
| ..... | 13 | 19.29 | 23.62 | 19.62 | 23.09 |
| ..... | 13 | 21.62 | 26.48 | 21.99 | 25.86 |
| ..... | 13 | 24.35 | 29.82 | 24.50 | 28.84 |
| ..... | 12 | 26.92 | 32.97 | 26.98 | 31.76 |
| ..... | 12 | 29.65 | 36.32 | 29.57 | 34.76 |
| ..... | 12 | 32.11 | 39.33 | 31.33 | 36.84 |
| ..... | 12 | 34.00 | 41.64 | 32.89 | 38.70 |

## CLAD STEELS

(Cents per pound)

| ling ess | —Plates— Carbon Base 10% | 20% | —Strip— Cold-Rolled Carbon Base Both Sides | | —Sheets— Carbon Base 10% | 20% | Cu Base Both Sides |
|---|---|---|---|---|---|---|---|
| ... | .... | .... | .... | .... | 19.75 | 26.24–27.50 | 77.00 |
| ... | 25.00 | 29.50 | .... | .... | 24.50 | 27.50–27.77 | 77.00 |
| ... | 30.50 | 35.00 | .... | .... | .... | .... | .... |
| ... | 36.50 | 41.00 | .... | .... | .... | .... | 144.00 |
| ... | 29.50 | 34.00 | .... | .... | 26.00 | 35.92–36.50 | .... |
| ... | 34.50 | 39.00 | .... | .... | .... | .... | .... |
| ... | 33.50 | 38.00 | .... | .... | .... | .... | .... |
| ... | 26.50 | 31.00–32.00 | .... | .... | 23.00 | 33.00 | 111.00 |
| ... | 27.50 | 32.00 | .... | .... | 24.00 | 33.50–33.83 | 130.00 |
| ... | 21.25 | 27.75 | .... | .... | .... | .... | .... |
| ... | 20.75 | 27.25 | .... | .... | .... | .... | .... |
| el . | 33.56 | 45.15 | 41.00 | 54.00 | .... | .... | .... |
| el. | 41.23 | 54.18 | .... | .... | .... | .... | 165.00 |
| l . | 34.93 | 46.28 | .... | .... | .... | .... | .... |
| er* | .... | .... | 23.70† | 29.65‡ | .... | .... | .... |

eoxidized. † 20.20c for hot-rolled. ‡ 26.40c for hot-l. Production points for carbon base products: Stainplates, sheet, Conshohocken, Pa. A3 and New Castle, I-4; stainless-clad plates, Claymont, Del. C22, Coates- Pa. L7 and Washington, Pa. J3; nickel, inconel, l-clad plates, Coatesville L7; nickel, copper-clad strip, egie, Pa., S18. Production point for copper-base s is Carnegie, Pa. A13.

## BOLTS, NUTS

### CARRIAGE, MACHINE BOLTS

(F.o.b. midwestern plants; per cent off list for less than case lots to consumers)

| | |
|---|---|
| 6 in. and shorter: | |
| ½-in. & smaller diam. | 15 |
| ⅝-in. & ⅞-in. | 18.5 |
| ¾-in. and larger | 17.5 |
| Longer than 6 in.: | |
| All diams. | 14 |
| Lag bolts, all diams.: | |
| 6 in. and shorter | 23 |
| over 6 in. long | 21 |
| Ribbed Necked Carriage | 18.5 |
| Blank | 34 |
| Plow | 34 |
| Step, Elevator, Tap, and Sleigh Shoe | 21 |
| Tire bolts | 12 |
| Boiler & Fitting-Up bolts | 31 |

### NUTS

| | Reg. | Hvy. |
|---|---|---|
| H.P. & C.P. Square: | | |
| ½-in. & smaller | 15 | 15 |
| ⅝-in. & ⅞-in. | 12 | 6.5 |
| ¾-in.-1½-in. | 9 | 1 |
| 1⅝-in. & larger | 7.5 | 1 |
| H.P. Hex.: | | |
| ½-in. & smaller | 26 | 22 |
| ⅝-in. & ⅞-in. | 16.5 | 6.5 |
| ¾-in.-1½-in. | 12 | 2 |
| 1⅝-in. & larger | 8.5 | 2 |
| C.P. Hex.: | | |
| ½-in. & smaller | 26 | 22 |
| ⅝-in. & ⅞-in. | 23 | 17.5 |
| ¾-in. & 1½-in. | 19.5 | 12 |
| 1⅝-in. & larger | 12 | 6.5 |

### SEMIFINISHED NUTS

American Standard

(Per cent off list for less than case or key quantities)

| | Reg. | Hvy. |
|---|---|---|
| ½-in. & smaller | 35 | 28.5 |
| ⅝-in. & ⅞-in. | 29.5 | 22 |
| ¾-in.-1½-in. | 24 | 15 |
| 1⅝-in. & larger | 13 | 8.5 |
| | .. | Light |
| ⅞-in. & smaller | ..... | 35 |
| ½-in. to ⅝-in. | ..... | 28.5 |
| ¾-in. to 1½-in. | ..... | 26 |

### STEEL STOVE BOLTS

(F.o.b. plant; per cent off list in packages)

| | |
|---|---|
| Plain finish | 48 & 10 |
| Plated finishes | 31 & 10 |

### HEXAGON CAP SCREWS

(1020 steel; packaged; per cent off list)

| | |
|---|---|
| 6 in. or shorter: | |
| ⅝-in. & smaller | 42 |
| ¾-in. through 1 in. | 34 |
| Longer than 6 in.: | |
| ⅝-in. & smaller | 26 |
| ¾-in. through 1 in. | 4 |

### SQUARE HEAD SET SCREWS

(Packaged; per cent off list)

| | |
|---|---|
| 1 in. diam. x 6 in. and shorter | 38 |
| 1 in. and smaller diam. x over 6 in. | 26 |

### HEADLESS SET SCREWS

(Packaged; per cent off list)

| | |
|---|---|
| No. 10 and smaller | 35 |
| ¼-in. diam. & larger | 16 |
| N.F. thread, all diams. | 10 |

## RIVETS

F. o. b. midwestern plants

Structural ½-in., larger 7.85c

⅞-in. under ..... 36 off

## WASHERS, WROUGHT

F.o.b. shipping point, to jobbers . .List to list-plus-$1.

## FLUORSPAR

Metallurgical grade, f. o. b. shipping point, in Ill., Ky., net tons, carloads, effective $CaF_2$ content, 70%, $43; 60%, $40.

Imported, net ton, duty paid, metallurgical grade, $33-$35.

## ELECTRODES

(Threaded, with nipples, unboxed, f.o.b. plant)

### GRAPHITE

| —Inches— Diam. | Length | Cents per lb |
|---|---|---|
| 17,18,20 | 60,72 | 17.85 |
| 8 to 16 | 48,60,72 | 17.85 |
| 7 | 48,60 | 19.57 |
| 6 | 48,60 | 20.95 |
| | CARBON | |
| 35,40 | 110 | 8.03 |
| 30 | 65,84,110 | 8.03 |
| 24 | 72 to 104 | 8.03 |
| 17 to 20 | 34,90 | 8.03 |

## STAINLESS STEEL

| Type | Sheets | C.R. Strip | Bars Wire Structurals |
|---|---|---|---|
| 301... | 41.00 | 34.00 | 31.25 |
| 302... | 41.25 | 36.75 | 31.50 |
| 303... | 43.25 | 40.25 | 34.00 |
| 304... | 43.25 | 38.75 | 33.00 |
| 309... | 56.00 | 55.00 | 44.75 |
| 316... | 57.00 | 59.00 | 49.25 |
| 321... | 49.25 | 48.25 | 37.00 |
| 347... | 53.75 | 52.25 | 41.50 |
| 410... | 36.50 | 30.50 | 25.75 |
| 416... | 37.00 | 37.00 | 26.25 |
| 420... | 44.00 | 47.00 | 31.25 |
| 430... | 39.00 | 31.00 | 26.25 |
| 501... | 27.50 | 26.00 | 14.25 |
| 502... | 28.50 | 27.00 | 15.25 |

Balt., Types 301-347 sheet, quotes slight variations on Types 301-347.

Bridgeville, Pa., bars, wire, except 303 and 309 E2.

Brackenridge, Pa., sheets A4 sheets & strip U4.

Butler, Pa., sheets and strip except Types 303, 309, 416, 420, 501 & 502, A10.

Carnegie, Pa., sheets and strip except Types 303, 416, 501 & 502 and 0.25c lower on Types 302, 304, 321, 347; 0.50c lower on Types 309 and 316 S18.

Cleveland, strip A7.

Detroit, strip M1 quotes 34.00 on Type 301; 36.50, 302; 38.50, 304; 58.50, 316; 52.00, 347; 30.50, 410; 31.00, 430.

Dunkirk, N. Y., bars, wire A4 quotes slight variations on Types 301-347.

Duquesne, Pa., bars U5.

Fort Wayne, Ind., bars and wire, except Types 501 & 502 J6 quotes slight variations on Types 301-347.

Gary, Ind., sheets except Type 416 U5.

Harrison, N. J., strip and wire C18.

Massillon, O., all items, R2.

McKeesport, Pa., strip, Type 410; bars & wire, Types 410 through 430 and 31.25c on Type 302, 33.75c on 303, 32.75c on 304, 48.75c on 316, 36.75c on 321, 41.25c on 347 F2.

McKeesport, Pa., bars, sheets except Type 416 U5.

Middletown, O., sheets and strip except Types 303, 416, 420, 501 and 502 A10.

Midland, sheets & Strip C18.

Munhall, Pa., bars U5.

Pittsburgh, sheets C18.

Reading, Pa., strip except 34.25c on Type 301 and 56.00c on 309; bars, except 31.50c on Type 301 and 45.25c on 309 C4.

Sharon, Pa., strip, except Types 303, 309, 416, 501, 502 and 34.25c on Type 301 S3.

So. Chicago, Ill., bars & structurals U5.

Syracuse, N. Y., bars, wire & structurals C18.

Titusville, Pa., bars, U4.

Wallingford, Conn., strip, W2 quotes 0.25c higher.

Washington, Pa., bars, sheets & strip, except 0.25c higher on Type 301 J3.

Washington, Pa., Types 301 through 347 sheets & strip except 303, 309; 316 sheets 62.00, strip 64.00 W4.

Watervliet, N. Y., structurals & bars A4 quotes slight variations on Types 301-347.

Waukegan, bars & wire A7.

West Leechburg, Pa., strip, A4 quotes slight variations on Types 301-347.

Youngstown, strip, except Types 303, 309, 316, 416, 501 and 502 and 34.25 on Type 301.

## COAL CHEMICALS

Spot, cents per gallon, ovens

Pure benzol .....30.00-35.00

Toluol, one deg...26.00-33.00

Industrial xylol ..25.00-33.50

Per ton bulk, ovens

Sulphate of ammonia..$32-$45

Cents per pound, ovens

Phenol, 40 (carlots, non-returnable drums) ..17.25

## METAL POWDERS

(Per pound, f.o.b. shipping point in ton lots for minus 100 mesh, except as otherwise noted)

| Sponge iron | Cents |
|---|---|
| 98+% Fe, carlots.. | 17.00 |
| Swedish, c.i.f. New York, in bags | .8.85-9.95 |
| Electrolytic Iron: | |
| Annealed, 99.5% Fe. | 42.50 |
| Unannealed, 99 + % Fe | 36.50 |
| Unannealed, 99 + % Fe (minus 325 mesh) | 58.50 |
| Powder Flakes | 48.50 |
| Carbonyl Iron: | |
| 97.9-99.8%, size 5 to 10 microns | ..83.00-148.00 |
| Aluminum: | |
| Carlots, freight allowed | 29.50 |
| Atomized, 500 lb drums, freight allowed | 33.50 |
| Antimony | 75.85 |
| Brass, 10-ton lots | 30.00-33.25 |
| Bronze, 10-ton lots | .51.25-60.00 |
| Phosphor-Copper, 10 ton lots | 50.00 |
| Copper: | |
| Electrolytic | ....37.25-46.25 |
| Reduced | .....33.75-37.00 |
| Lead | 25.50 |
| Magnesium | .....75.00-85.00 |
| Manganese: | |
| Minus 100-mesh | 57.00 |
| Minus 35 mesh | 52.00 |
| Minus 200 mesh | 62.00 |
| Nickel unannealed | ... 86.00 |
| Nickel-Silver, 10-ton lots | 45.00 |
| Silicon | 38.50 |
| Solder (plus cost of metal) | 8.50 |
| Stainless Steel, 302 | .. 83.00 |
| Zinc, 10-ton lots | ..23.00-30.50 |

| Tungsten | Dollars |
|---|---|
| Melting grade, 99%, 60 to 200 mesh, freight allowed: | |
| 1000 lb and over | .. 6.00 |
| Less than 1000 lb | .. 6.15 |
| 98.8% minus 65 mesh, freight allowed: | |
| 1000 lb and over | ... 4.15 |
| Less than 1000 lb | .. 4.25 |
| Molybdenum: | |
| 99.9%, minus 200 mesh | 3.25 |
| Chromium, electrolytic 99% Cr min. | ..... 3.50 |

## METALLURGICAL COKE

Price per net ton

### BEEHIVE OVENS

| | |
|---|---|
| Connellsvll,fur. | .$14.50-15.00 |
| Connellsvll,fdry. | .17.00-18.00 |
| New River foundry | ...21.30 |
| Wise county, foundry | ..15.95 |
| Wise county, furnace | ..15.20 |

### OVEN FOUNDRY COKE

| | |
|---|---|
| Kearny, N. J., ovens. | $22.75 |
| Everett, Mass., ovens New England, del... | *24.80 |
| Chicago ovens | .....23.00 |
| Chicago, del. | .....24.40 |
| Terre Haute, ovens | ...22.50 |
| Milwaukee, ovens | .....23.75 |
| Indianapolis, ovens | ....22.75 |
| Chicago, del. | .....26.42 |
| Cincinnati, del. | .....25.85 |
| Detroit, del. | .....26.85 |
| Ironton, O., ovens | ....22.50 |
| Cincinnati, del. | .....25.12 |
| Painesville, O., ovens. | .24.00 |
| Cleveland, del. | .....25.82 |
| Erie, Pa., ovens | .....23.50 |
| Birmingham, ovens | ....20.30 |
| Birmingham, del. | ....21.69 |
| Philadelphia, ovens | ...22.70 |
| NevilleIsland,Pa.,ovens | 23.00 |
| Swedeland, Pa., ovens. | .22.60 |
| St. Louis, ovens | |
| St. Louis, del. | .....25.40 |
| Portsmouth, O., oven. | .22.50 |
| Cincinnati, del. | .....25.12 |
| Detroit, ovens | .....24.00 |
| Detroit, del. | .....25.00 |
| Buffalo, del. | .....26.89 |
| Flint, del. | .....26.59 |
| Pontiac, del. | .....25.47 |
| Saginaw, del. | .....26.92 |

* Or within $4.15 freight zone from works.

# STEEL MILLS NEED SCRAP BECAUSE YOU NEED STEEL

The lack of scrap at steel mills is aggravating still further the shortages you are already enduring in steel supply. This scrap may be cluttering your property—adding to your cost of doing business. It can help increase steel supply, if you move it now. Call your dealer and profit two ways. Your scrap is worth cash today and it will enable the mills to produce more steel.

CONTINENTAL STEEL

## CONTINENTAL STEEL CORPORATION

GENERAL OFFICES • KOKOMO, INDIANA

PRODUCERS OF STEEL SHEETS, including Continental GALVANIZED, COPPER-STEEL Galvanized, KONIK steel sheets Galvanized, UNIFORM SPANGLE Galvanized, DULL COAT, Continental GALVANNEALED, ELECTRICAL, Hot Rolled Pickled, and many styles of Formed Roofing. ALSO, Manufacturer's Wire in many sizes, shapes, tempers, and finishes, Continental Chain Link Fence, Nails, and other steel products.

# WAREHOUSE STEEL PRODUCTS

(Prices, cents per pound, for delivery within switching limits, subject to extras)

| | SHEETS | | | STRIP | | BARS | | | Standard Structural Shapes | PLATES | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | H.R. 18 Ga., Heavier* | C.R. | Gal. 10 Ga.† | H.R.* | C.R.* | H.R. Rds. | C.F. Rds. | H.R. Alloy 4140§ | | Carbon | Floor |
| w York (city) | 6.27 | 7.29 | 8.44 | 6.59 | ... | 6.42 | 7.29 | 9.25 | 6.40 | 6.58 | 8.04 |
| w York(c'try) | 5.97 | 6.99 | 8.14 | 6.29 | ... | 6.12 | 6.99 | 8.95 | 6.10 | 6.28 | 7.74 |
| ston (city) .. | 6.40 | 7.20 | 8.49 | 6.35 | ... | 6.25 | 7.04 | 9.25 | 6.40 | 6.98 | 7.88 |
| ston (c'try) . | 6.20 | 7.00 | 8.29 | 6.15 | ... | 6.05 | 6.84 | 9.05 | 6.20 | 6.78 | 7.68 |
| fla. (city) .. | 6.15 | 7.05 | 8.25 | 6.35 | ... | 6.30 | 7.11 | 8.90 | 6.15 | 6.30 | 7.40 |
| fla. (c'try) .. | 5.90 | 6.80 | 8.00 | 6.10 | ... | 6.05 | 6.86 | 8.65 | 5.90 | 6.05 | 7.15 |
| lt. (city) ... | 5.80 | 7.04 | 8.27 | 6.24 | ... | 6.24 | 7.09 | ... | 6.34 | 6.00 | 7.64 |
| lt. (c'try) .. | 5.60 | 6.84 | 8.07 | 6.04 | ... | 6.04 | 6.89 | ... | 6.14 | 5.80 | 7.44 |
| rfolk, Va. .. | 6.50 | ... | ... | 6.70 | ... | 6.55 | 7.70 | ... | 6.60 | 6.50 | 8.00 |
| hmond, Va. . | 5.90 | ... | 8.10 | 6.10 | ... | 6.10 | 6.90 | ... | 6.30 | 6.05 | 7.80 |
| sh. (w'hse) . | 6.02 | 7.26 | 8.49 | 6.46 | ... | 6.46 | 7.26 | ... | 6.56 | 6.22 | 7.86 |
| ffalo (del.) .. | 5.80 | 6.60 | 8.29 | 6.06 | ... | 5.80 | 6.65 | 10.65††[5] | 6.00 | 6.25 | 7.55 |
| ffalo (w'hse). | 5.60 | 6.40 | 8.09 | 5.86 | ... | 5.60 | 6.45 | 10.45††[5] | 5.80 | 6.05 | 7.35 |
| ts. (w'hse) .. | 5.60 | 6.40* | 7.75 | 5.65-5.95 | 6.90 | 5.55 | 6.40 | 10.10†† | 5.70 | 5.75 | 7.00 |
| troit (w'hse). | 5.45-5.78 | 6.53-6.80 | 7.99 | 5.94-5.95 | 7.75 | 5.84 | 6.56 | 8.91 | 6.09 | 6.19-6.35 | 7.28 |
| veland (del.) | 5.80 | 6.60 | 8.30 | 5.89 | 7.10 | 5.77 | 6.60-6.70 | 8.91 | 10.02 | 6.12 | 7.32 |
| eve. (w'hse) . | 5.60 | 6.40 | 8.10 | 5.69 | 6.90 | 5.57 | 6.40-6.50 | 8.71 | 5.82 | 5.92 | 7.12 |
| ncin. (city) .. | 6.02 | 6.59 | 7.34 | 5.95 | ... | 5.95 | 6.51 | ... | 6.24 | 6.34 | 7.50 |
| icago (city) . | 5.80 | 6.60 | 7.95 | 5.75 | ... | 5.75 | 6.50 | 10.30 | 5.90 | 6.00 | 7.20 |
| icago (w'hse) | 5.60 | 6.40 | 7.75 | 5.55 | ... | 5.55 | 6.30 | 10.10 | 5.70 | 5.80 | 7.00 |
| lwaukee (city) | 5.94 | 6.74 | 8.09 | 5.89 | ... | 5.89 | 6.74 | 10.44 | 6.04 | 6.14 | 7.34 |
| lwau. (c'try) | 5.74 | 6.54 | 7.89 | 5.69 | ... | 5.69 | 6.54 | 10.24 | 5.84 | 5.94 | 7.14 |
| Louis (del.) | 6.05 | 6.85 | 8.20 | 6.00 | ... | 6.00 | 6.85 | 10.55 | 6.23 | 6.33 | 7.53 |
| L. (w'hse) . | 5.85 | 6.65 | 8.00 | 5.80 | ... | 5.80 | 6.65 | 10.35 | 6.03 | 6.13 | 7.33 |
| ns. City(city) | 6.40 | 7.20 | 8.40 | 6.35 | ... | 6.35 | 7.20 | ... | 6.50 | 6.60 | 7.80 |
| nsCity(w'hse) | 6.20 | 7.00 | 8.20 | 6.15 | ... | 6.15 | 7.00 | ... | 6.30 | 6.40 | 7.60 |
| m'hm (city). | 5.75 | 6.55 | 6.90[2] | 5.70 | ... | 5.70 | 7.53 | ... | 5.85 | 6.10 | 8.25 |
| m'hm(w'hse) | 5.60 | 6.40 | 6.75[2] | 5.55 | ... | 5.55 | 7.53 | ... | 5.70 | 5.95 | 8.23 |
| s Ang. (city) | 6.55 | 8.10 | 9.05[3] | 6.60 | 8.90 | 6.55 | 7.75 | ... | 6.55 | 6.60 | 9.20 |
| A. (w'hse) . | 6.35 | 7.90 | 8.85[3] | 6.40 | 8.70 | 6.35 | 7.55 | ... | 6.35 | 6.40 | 8.70 |
| n Francisco . | 6.65 | 7.80[4] | 8.90[3] | 6.60 | ... | 6.45 | 8.20 | ... | 6.45 | 6.50 | 8.60 |
| attle-Tacoma . | 7.05 | 8.60[3] | 9.20[3] | 7.30 | ... | 6.75 | 9.10 | 11.15 | 6.65 | 6.75 | 8.80 |

Prices do not include gage extras; † prices include gage and coating extras, except Birmingham (coating extra excluded) and Los Angeles (gage ra excluded); ‡ includes extra for 10 gage; § as rolled; †† as annealed. Base quantities, 2000 to 9999 lb except as noted: Cold-rolled strip, 2000 lb d over; cold-finished bars, 2000 lb and over; [2]—500 to 1499 lb; [3]—450 to 1499 lb; [4]—3500 lb and over; [5]—1000 to 1999 lb.

## ORES

**Lake Superior Iron Ore**

oss ton, 51½% (natural), lower lake ports. After adjustment for analysis, prices will be reased or decreased as the case may be for reases or decreases after Dec. 2, 1950, in plicable lake vessel rates, upper lake rail, ights, dock handling charges and taxes reon.

| | |
|---|---|
| l range bessemer | $8.70 |
| l range nonbessemer | 8.55 |
| sabi bessemer | 8.45 |
| sabi nonbessemer | 8.30 |
| gh phosphorus | 8.30 |

**Eastern Local Ore**

Cents per unit, del. E. Pa.

| | |
|---|---|
| indry and basic 56-62% concentrates ontract | 17.00 |

**Foreign Ore**

Cents per unit, c.i.f. Atlantic ports

| | |
|---|---|
| edish basic, 60 to 68%: spot | 17.00 |
| ong-term contract | 15.00 |
| rth African hematites | 17.00 |
| azilian iron ore, 68-69% | 24.00-25.00 |

**Tungsten Ore**

Net ton unit, duty paid

| | |
|---|---|
| reign wolframite and scheelite, per et ton unit | $65.00 |
| mestic scheelite, mines | 65.00 |

**Manganese Ore**

nganese, 48% nearby, $1.18-$1.22 per long unit, c.i.f. U. S. ports, duty for buyer's ount; shipments against old contracts for % ore are being received from some sources 79.8-81.8c.

**Chrome Ore**

ss ton, f.o.b. cars, New York, Philadel-a, Baltimore, Charleston, S. C., plus ocean ght differential for delivery to Portland, g., or Tacoma, Wash.

*Indian and African*

| | |
|---|---|
| % 2.8:1 | $32.50 |
| % 3:1 | 35.00-36.00 |
| % no ratio | 26.00 |

*South African Transvaal*

| | |
|---|---|
| % no ratio | $27.00-28.00 |
| % no ratio | 34.00-35.00 |

*Brazilian*

| | |
|---|---|
| % 2.5:1 lump | $32.00 |

*Rhodesian*

| | |
|---|---|
| % no ratio | $20.00-21.00 |
| % no ratio | 26.00 |
| % 3:1 lump | 35.00-36.00 |

Domestic—rail nearest seller

| | |
|---|---|
| % 3:1 | $39.00 |

**Molybdenum**

| | |
|---|---|
| olhide concentrates per lb, molyb-enum content, mines | $1.00 |

## CHROMIUM ALLOYS

**High-Carbon Ferrochrome:** Contract, c.l., lump, bulk 21.75c per lb of contained Cr. c.l., packed 22.65c, ton lot 23.80c, less ton 25.20c. Delivered Spot, add 0.25c.

**Low-Carbon Ferrochrome:** (Cr 67-72%.) Contract, carload, lump, bulk, max. 0.03% C 33.60c per lb of contained Cr, 0.04% C 31.50c, 0.06% C 30.50c, 0.10% C 30.00c, 0.15% C 29.75c, 0.20% C 29.50c, 0.50% C 29.25c, 1% C 29.00c, 1.50% C 28.85c, 2% C 28.75c. Carload packed add 1.1c, ton lot add 2.2c, less ton add 3.9c. Delivered Spot, add 0.25c.

**Foundry Ferrochrome, High Carbon:** (Cr 62-66%, C 5-7%) Contract, c.l. S M x D, bulk, 23.25c per lb of contained Cr. C.l., packed 24.15c, ton 25.50c, less ton 27.25c. Delivered Spot, add 0.25c

**Foundry Ferrochrome, Low Carbon:** (Cr 50-54%, Si 28-32%, C 1.25% max.) Contract, carload, packed, S M x D, 16.35c per lb of alloy; ton lot 17.2c; less ton lot, 18.4c, delivered; spot, add 0.25c.

**Low-Carbon Ferrochrome Silicon:** (Cr 34-41%, Si 42-49%, C 0.05% max.) Contract, carload, lump, 4" x down and 2" x down, bulk, 21.75c per lb of contained chromium plus 12.4c per pound of contained silicon; 1" x down, bulk 21.90c per pound of contained chromium plus 12.60c per pound of contained silicon. F.o.b. plant; freight allowed to destination.

**Ferrochrome Silicon, No. 2:** (Cr 36-39%, Si 36-39%, Al 7-9%, C 0.05% max.) 21.75c per lb of contained silicon plus 12.4c per lb of contained silicon plus aluminum, 3" x down, delivered.

**Chromium Metal:** (Min. 97% Cr and 1% Fe) Contract carload, 1" x D; packed, max 0.50% C grade, $1.08 per lb of contained chromium ton lot $1.10, less ton $1.12. Delivered. Spot add 5c.

## SILICON ALLOYS

**25-30% Ferrosilicon:** Contract, carload, lump, bulk, 20.00c per lb of contained Si; packed 21.40c; ton lot 22.50c, f.o.b. Niagara Falls, freight not exceeding St. Louis rate allowed.

**50% Ferrosilicon:** Contract, carload, lump, bulk, 12.40c per lb of contained Si, carload packed 14.0c, ton lot 15.45c, less ton 17.1c. Delivered. Spot, add 0.45c.

**Low-Aluminum 50% Ferrosilicon:** (Al 0.40% max.) Add 1.3c to 50% ferrosilicon prices.

**75% Ferrosilicon:** Contract, carload, lump, bulk, 14.3c per lb of contained Si, carload packed 15.6c, ton lot 16.75c, less ton 18.0c. Delivered. Spot, add 0.8c.

**Low-Aluminum 85% Ferrosilicon:** (Al 0.50% max.) Add 0.7c to 85% ferrosilicon prices.

**90-95% Ferrosilicon:** Contract, carload, lump, bulk, 17.5c per lb of contained Si, carload packed 18.7c, ton lot 19.65c, less ton 20.7c. Delivered. Spot, add 0.25c.

**Silicon Metal:** (Min. 97% Si and 1% max. Fe). C.l. lump, bulk, regular 20.0c per lb of Si, c.l. packed 21.2c, ton lot 22.1c, less ton 23.1c. Add 1.5c for max, 0.10% calcium grade. Deduct 0.4c for max. 2% Fe grade analyzing min. 96% Si. Spot, add 0.25c.

**Alsifer:** (Approx. 20% Al, 40% Si, 40% Fe.) Contract, basis f.o.b. Niagara Falls, N. Y., lump, carload, bulk, 9.90c per lb of alloy, ton lots packed 11.30c, 200 to 1999 lb 11.65c, smaller lots 12.15c.

## VANADIUM ALLOYS

**Ferrovanadium:** Open-hearth Grade (V 35-55%, Si 8-12% max., C 3-3.5% max.). Contract, any quantity, $3.10 per lb of contained V. Delivered, Spot, add 10c. **Crucible-Special Grades** (V 35-55%, Si 2-3.5% max., C 0.5-1% max.), $3.20. **Primos and High Speed Grades** (V 35-55%, Si 1.50% max., C 0.20% max.) $3.30.

**Grainal:** Vanadium Grainal No. 1, $1 per lb; No. 6, 68c; No. 79, 50c, freight allowed.

**Vanadium Oxide:** Contract, less carload lots $1.28 per lb contained $V_2O_5$, freight allowed. Spot, add 5c.

## BORON ALLOYS

**Ferroboron:** (B 17.50% min., Si 1.50% max., Al 0.50% max., C 0.50% max.). Contract, 100 lb or more, 1" x D, $1.20 per lb of alloy. Less than 100 lb $1.30. Delivered, spot, add 5c. F.o.b. Washington, Pa., prices 100 lb and over are as follows: Grade A (10-14% B) 75c per pound; Grade B (14-18% B) $1.20; Grade C (19% min. B) $1.50.

**Borosil:** (3 to 4% B, 40 to 45% Si), $5.25 per lb contained B, delivered to destination.

**Bortam:** (B 1.5-1.9%). Ton lots, 45c per lb; smaller lots, 50c per lb.

**Carbortam:** (B 1 to 2%) contract, lump, carloads 9.50c per lb, f.o.b. Suspension Bridge, N. Y., freight allowed same as high-carbon ferrotitanium.

## TUNGSTEN ALLOYS*

**Ferrotungsten:** (70-80%). 10,000 lb W or more, $5.00 per lb of contained W 2000 lb W to 10,000 lb W, $5.10; less than 2000 lb W, $5.22.

**Tungsten Powder:** Carbon Reduced; (W 98.8% min.) 1000 lb or more, $6.00 per lb of contained W; less than 1000 lb W, $6.15.

*Note: Current prices on zirconium, calcium and briquetted alloys appeared on page 159, Sept. 17 issue; manganese, titanium and "other" ferroalloys, page 151, Sept. 24. Refractories prices were published on page 159, Sept. 24.*

**Government ceiling prices, effective May 7, 1951, f.o.b. Niagara Falls, N. Y., basis*

# CEILING PRICES, IRON AND STEEL SCRAP

Prices as set forth in Office of Price Stabilization ceiling price regulation No. 5, as amended Apr. 19, 1951

## STEELMAKING SCRAP COMPOSITE

| | |
|---|---|
| Sept. 27 | $44.00 |
| Sept. 20 | 44.00 |
| July 1951 | 44.00 |
| Aug. 1950 | 40.00 |
| Aug. 1946 | 19.17 |

Based on No. 1 heavy melting grade at Pittsburgh, Chicago and eastern Pennsylvania.

Basing point ceiling prices per gross ton from which maximum shipping prices are computed on scrap of dealer and industrial origin; and from which ceiling on-line and ceiling delivered prices are computed on scrap of railroad origin.

**No. 1 Heavy Melting Steel (Grade) 1**

| Basing Point | Dealer, Industrial | Railroad |
|---|---|---|
| Alabama City, Ala. | $39.00 | $41.00 |
| Ashland, Ky. | 42.00 | 44.00 |
| Atlanta, Ga. | 39.00 | 41.00 |
| Bethlehem, Pa. | 42.00 | 44.00 |
| Birmingham, Ala | 39.00 | 41.00 |
| Brackenridge, Pa. | 44.00 | 46.00 |
| Buffalo, N. Y. | 43.00 | 45.00 |
| Butler, Pa. | 44.00 | 46.00 |
| Canton, O. | 44.00 | 46.00 |
| Chicago, Ill. | 42.50 | 44.50 |
| Cincinnati, O. | 43.00 | 45.00 |
| Claymont, Del. | 42.50 | 44.50 |
| Cleveland, O. | 43.00 | 45.00 |
| Coatesville, Pa. | 42.50 | 44.50 |
| Conshohocken, Pa. | 42.50 | 44.50 |
| Detroit, Mich. | 41.15 | 43.15 |
| Duluth, Minn. | 40.00 | 42.00 |
| Harrisburg, Pa. | 42.50 | 44.50 |
| Houston, Tex. | 37.00 | 39.00 |
| Johnstown, Pa. | 44.00 | 46.00 |
| Kansas City, Mo. | 39.50 | 41.50 |
| Kokomo, Ind. | 42.00 | 44.00 |
| Los Angeles | 35.00 | 37.00 |
| Middletown, O. | 43.00 | 45.00 |
| Midland, Pa. | 44.00 | 46.00 |
| Minnequa, Colo. | 38.00 | 40.00 |
| Monessen, Pa. | 44.00 | 46.00 |
| Phoenixville, Pa. | 42.50 | 44.50 |
| Pittsburg, Calif. | 35.00 | 37.00 |
| Pittsburgh, Pa. | 44.00 | 46.00 |
| Portland, Oreg. | 35.00 | 37.00 |
| Portsmouth, O. | 42.00 | 44.00 |
| St. Louis, Mo. | 41.00 | 43.00 |
| San Francisco | 35.00 | 37.00 |
| Seattle, Wash. | 35.00 | 37.00 |
| Sharon, Pa. | 44.00 | 46.00 |
| Sparrows Point, Md. | 42.00 | 44.00 |
| Steubenville, O. | 44.00 | 46.00 |
| Warren, O. | 44.00 | 46.00 |
| Weirton, W. Va. | 44.00 | 46.00 |
| Youngstown, O. | 44.00 | 46.00 |

### Differentials from Base

Differentials per gross ton for other grades of dealer and industrial scrap:

**O-H and Blast Furnace Grades**

| | |
|---|---|
| 2. No. 2 Heavy Melting | —$2.00 |
| 3. No. 1 Busheling | Base |
| 4. No. 1 Bundles | Base |
| 5. No. 2 Bundles | — 3.00 |
| 6. Machine Shop Turnings | —10.00 |
| 7. Mixed Borings & Short Turnings | — 6.00 |
| 8. Shoveling Turnings | — 6.00 |
| 9. No. 2 Busheling | — 4.00 |
| 10. Cast Iron Borings | — 6.00 |

**Elec. Furnace and Fdry. Grades**

| | |
|---|---|
| 11. Billet, Bloom & Forge Crops | + 7.50 |
| 12. Bar Crops & Plate | + 5.00 |
| 13. Cast Steel | + 5.00 |
| 14. Punchings & Plate Scrap | + 2.50 |
| 15. Electric Furnace Bundles | + 2.00 |
| Cut Structurals & Plate: | |
| 16. 3 feet and under | + 3.00 |
| 17. 2 feet and under | + 5.00 |
| 18. 1 foot and under | + 6.00 |
| 19. Briquetted Cast Iron Borings | Base |
| Foundry, Steel: | |
| 20. 2 feet and under | + 2.00 |
| 21. 1 foot and under | + 4.00 |
| 22. Springs and Crankshafts | + 1.00 |
| 23. Alloy Free turnings | — 3.00 |
| 24. Heavy Turnings | — 1.00 |

**Special Grades**

| | |
|---|---|
| 25. Briquetted Turnings | Base |
| 26. No. 1 Chemical Borings | — 3.00 |
| 27. No. 2 Chemical Borings | — 4.00 |
| 28. Wrought Iron | +10.00 |
| 29. Shafting | +10.00 |

**Restrictions on Use**

(1) Prices for Grades 11 and 23 may be charged only when shipped to a consumer directly from an industrial producer; otherwise ceiling prices shall not exceed prices established for Grades 12 and 8, respectively.
(2) Prices established for Grades 26 and 27 may be charged only when sold for use for chemical or annealing purposes, and in the case of Grade 27, for briquetting and direct charge into an electric furnace; otherwise ceiling prices shall not exceed price established for Grade 10.
(3) Prices established for Grade 28 may be charged only when sold to a producer of wrought iron; otherwise ceiling price shall not exceed ceiling price for corresponding grade of basic open-hearth.
(4) Premiums for Grades 11-18, 20 and 21 may be charged only when sold for use in electric and open-hearth furnaces or foundries.
(5) Prices for Grade 29 may be charged only when sold for forging or rerolling purpose.

**Special Pricing Provisions**

(1) Sellers of Grades 26 and 27 may make an extra charge of $1.50 per ton for loading in box cars, or 75 cents per ton for covering gondola cars with a weather-resistant covering.
(2) Ceiling price of pit scrap, ladle scrap, salamander scrap, skulls, skimmings or scrap recovered from slag dumps and prepared to charging box size, shall be computed by deducting from the price of No. 1 heavy melting steel of dealer and industrial origin, the following amounts: Where iron content is 85% and over, $6; 75% and over, $10; less than 75%, $12.
(3) Ceiling price of any inferior grade of scrap not listed shall not exceed the price of No. 1 heavy melting steel less $15.

**Differentials from Base**

Differentials per gross ton above or below the price of Grade 1 (No. 1 railroad heavy melting steel) for other grades of railroad steel scrap.

| | |
|---|---|
| 2. No. 2 Heavy melting Steel | —$2.00 |
| 3. No. 2 Steel Wheels | Base |
| 4. Hollow Bored Axles and loco. axles with keyways between the wheelseats. | Base |
| 5. No. 1 Busheling | — 3.50 |
| 6. No. 1 Turnings | — 3.00 |
| 7. No. 2 Turnings, Drillings & Borings | —12.00 |
| 8. No. 2 Cast Steel and uncut wheelcenters | — 6.00 |
| 9. Uncut Frogs, switches. | Base |
| 10. Flues, Tubes & Pipes | — 8.00 |
| 11. Structural, Wrought Iron and/or steel, uncut | — 6.00 |
| 12. Destroyed Steel Cars | — 8.00 |
| 13. No. 1 Sheet Scrap | — 9.50 |
| 14. Scrap Rails, Random Lengths | + 2.00 |
| 15. Rerolling Rails | + 7.00 |
| Cut Rails: | |
| 16. 3 feet and under | + 5.00 |
| 17. 2 feet and under | + 6.00 |
| 18. 18 inches and under | + 8.00 |
| 19. Cast Steel, No. 1 | + 3.00 |
| 20. Uncut Tires | + 2.00 |
| 21. Cut Tires | + 5.00 |
| Bolsters & Side Frames: | |
| 22. Uncut | Base |
| 23. Cut | + 3.00 |
| 24. Angle, Splice Bars & Tie Plates | + 5.00 |
| 25. Solid Steel Axles | +12.00 |
| 26. Steel Wheels, No. 3 oversize | Base |
| 27. Steel Wheels, No. 3 | + 5.00 |
| 28. Spring Steel | + 5.00 |
| 29. Couplers & Knuckles | + 5.00 |
| 30. Wrought Iron | + 8.00 |
| 31. Fireboxes | — 8.00 |
| 32. Boilers | — 6.00 |
| 33. No. 2 Sheet Scrap | —13.00 |
| 34. Carsides, Doors, Car Ends, cut apart | — 6.00 |

**Restrictions on Use**

(1) Price established for Grade 15 may be charged only when purchased and sold for rerolling uses; otherwise, ceiling shall not exceed that for Grade 14.
(2) Price established for Grade 30 may be charged only when sold to a producer of wrought iron; otherwise, ceiling shall not exceed that for No. 1 heavy melting steel.
(3) Price for Grade 25 may be charged only when sold for rerolling and forging purposes; otherwise ceiling shall not exceed that for base grade (No. 1.)

## CAST IRON SCRAP

Ceiling price per gross ton for following grades shall be f.o.b. shipping point:

Cast Iron:

| | |
|---|---|
| 1. No. 1. (Cupola) | $49.00 |
| 2. No. 2 (Charging Box) | 47.00 |
| 3. No. 3 (Hvy. Breakable) | 45.00 |
| 4. No. 4 (Burnt Cast) | 41.00 |
| 5. Cast Iron Brake Shoes | 41.00 |
| 6. Stove Plate | 46.00 |
| 7. Clean Auto Cast | 52.00 |
| 8. Unstripped Motor Blocks | 43.00 |
| 9. Wheels, No. 1 | 47.00 |
| 10. Malleable | 55.00 |
| 11. Drop Broken Machinery. | 52.00 |

**Restrictions on Use**

(1) Ceiling shipping point price which a basic open-hearth consumer may pay for No. 1 cast iron, clean auto cast, malleable or drop broken machinery cast shall be ceiling price for No. 3 cast iron.
(2) Ceiling shipping point price which any foundry other than a malleable iron producer may pay for Grade 10 shall be ceiling price for No. 1 cast iron.

**Preparation Charges**

Ceiling fees per gross ton which may be charged for intransit preparation of any grade of steel scrap of dealer or industrial origin authorized by OPS are:

(1) For preparing into Grades No. 1, No. 2 or No. 3, $8.
(2) For hydraulically compressing Grade No. 4, $6 per ton; Grade No. 5, $8.
(3) For crushing Grade No. 6, $3.
(4) For preparing into Grade No. 25, $6.
(5) For preparing into Grade No. 19, $6.
(6) For preparing into Grades No. 12, No. 13, No. 14, No. 16, or No. 20, $10.
(7) For preparing into Grade No. 17 or Grade No. 21, $11.
(8) For preparing into Grade No. 18 or Grade No. 20, $12.
(9) For hydraulically compressing Grade No. 15, $8.
(10) For preparing into Grade No. 28, $10.

Ceiling fees per gross ton which may be charged for intransit preparation of any grade of steel scrap of railroad origin shall be:

(1) For preparing into Grade No. 1 and Grade No. 2, $8.
(2) For hydraulically compressing Grade No. 13, $6.
(3) For preparing into Grade No. 16, $4.
(4) For preparing into Grade No. 17, $5.
(5) For preparing into Grade No. 18, $7.
(6) For preparing into Grade No. 21, $4.
(7) For preparing into Grade No. 23, $4.

Ceiling fees per gross ton which may be charged for intransit preparation of cast iron are limited to:

(1) For preparing Grade No. 8 into grade No. 7, $9.
(2) For preparing Grade No. 3 into Grade No. 11, $7.
(3) For preparing Grade No. 3 into Grade No. 1, $4.

Whenever scrap has arrived at its point of delivery and consumer engages a dealer to prepare such scrap, no fee may be charged for such services unless consumer obtains prior written OPS approval.

**Commissions**

No commission shall be payable to a broker in excess of $1.

**Unprepared Scrap**

For unprepared scrap, other than materials suitable for hydraulic compression, ceiling basing point prices shall be $8 per ton beneath ceiling of the prepared base grades.
For unprepared material which when compressed constitutes No. 1 bundles, ceiling basing point price shall be $6 per ton beneath ceiling for No. 1 bundles; or when compressed constitutes No. 2 bundle ceiling basing point price shall be $8 beneath ceiling basing point price for No. 2 bundles.

**Premiums for Alloy Content**

No premium may be charged for alloy content except: $1.25 per ton for each 0.25% of nickel when scrap contains not less than 1% and not over 5.25% nickel; $2 per ton for scrap containing not less than 0.15 per cent molybdenum and $3 for scrap containing not less than 0.65% molybdenum; for scrap containing not less than 10% manganese, $4 for scrap in sizes larger than 12 x 24 x 8 in., and $14 for scrap cut in that size or smaller (applicable only if scrap is sold for electric furnace uses or on NPA allocation); $1 for scrap conforming to SAE 52100.

**Switching Charges**

Switching charges to be deducted from basing point prices of dealer industrial and nonoperating railroad scrap, to determine ceiling shipping point prices for scrap originating in basing points are per gross ton:
Alabama City, Ala., 43c; Ashland, Ky., 47c; Atlanta, 51c.
Bethlehem, Pa., 52c; Birmingham, 50c; Brackenridge, Pa., 53c; Buffalo, 83c; Butler, Pa., 65c.
Canton, O., 51c; Chicago (including Gary, Ind.), $1.34; Cincinnati (including Newport, Ky.), 65c; Claymont, Del. (including Chester, Pa.), 79c; Cleveland, 76c.
Coatesville, Pa., 50c; Conshohocken, Pa., 20c.
Detroit, 95c; Duluth, Minn., 50c.
Harrisburg, Pa., 51c; Houston, Tex., 57c.
Johnstown, Pa., 75c.
Kansas City, Mo., 78c; Kokomo, Ind., 51c.
Middletown, O., 26c; Midland, Pa., 75c; Minnequa, Colo., 33c; Monessen, Pa., 51c.
Phoenixville, Pa., 51c; Pittsburg, Calif., 65c; Pittsburgh (including Bessemer, Homestead, Duquesne, Munhall), 99c; Portland, Oreg., 52c; Portsmouth, O., 51c.
St. Louis (including Federal, Granite City, E. St. Louis, Madison, Ill.), 51c; San Francisco (including South San Francisco, Niles, Oakland), 66c; Seattle, 59c; Sharon, Pa., 75c; Sparrows Point, Md., 20c; Steubenville, O., 51c.
Warren, Pa., 75c; Weirton, W. Va., 70c.
Youngstown, 75c.

**HAMILTON, ONT.**
(Delivered Prices)

| | |
|---|---|
| Heavy Melt. | $35.00 |
| No. 1 Bundles | 35.00 |
| No. 2 Bundles | 34.00 |
| Mechanical Bundles | 33.00 |
| Mixed Steel Scrap | 31.00 |
| Mixed Borings, Turnings | 28.00 |
| Rails, Remelting | 35.00 |
| Rails, Rerolling | 38.00 |
| Busheling | 29.50 |
| Bushelings new factory, prep'd. | 33.00 |
| Bushelings new factory, unprep'd. | 28.00 |
| Short Steel Turnings | 28.00 |
| Cast Iron Grades* | |
| No. 1 Machinery Cast. | 58.00-60.00 |

* F.o.b. shipping point.

# The Metal Market

**Government takes steps to assure adequate supplies of nonferrous metals to sustain production of defense materiel. Aluminum rivet makers get supplemental allotments**

HORTAGES of nonferrous metals, gravated by the recent strike of rkers at copper, lead and zinc pro- cing properties, are critical, reatening curtailment of an im- rtant segment of defense materiel oduction.

The government is taking steps to eviate the situation requiring rger set-asides for war materiel d less for consumer goods. To ex- dite production of military air- aft during first quarter 1952, De- nse Production Administration sued supplemental allotments for 1 l.on pounds of aluminum to four uminum rivet manufacturers for e in fourth quarter this year. iginal allotment to them for fourth arter was 1.5 million pounds.

An estimated 2.8 million pounds of uminum rivets are needed for first- arter military aircraft production. tal fourth-quarter CMP allotment rivet makers will cover 2.5 mil- n pounds. The remainder of the st-quarter aircraft rivet require- nts will be supplied from early oduction in first quarter.

The supplemental allotment was ade from DPA's reserve of con- olled materials set aside for hard- ip cases.

A power shortage in the Pacific rthwest seriously threatens alumi- m production.

**Aids Producers**—The government s assured a further increase in do- estic copper production for stock- ling and other defense needs by aching agreements on two projects. efense Materials Procurement Agen- will advance $60,000 for working pital to North Butte Mining Co., utte, Mont., for expansion of its fa- ities at the Granite Mountain mine. ie company has a leaching opera- on at the site which will be en- rged to produce about 7 million unds of cement copper annually.

An agreement with Copper Cities ning Co., Miami, Ariz., will pro- de 22,500 tons a year. The copper ll come from ore mined at the mpany's Gila county ore body near at city. The agreement calls for pper Cities to undertake a $15.2 llion expansion program for addi- onal equipment to mine and treat e ore. DMPA agrees to buy at .00c a pound up to 170 million unds of the first 192.5 million unds produced by the new facilities, oviding the company cannot sell it other purchasers in the United ates at a higher price. The new cilities, which will have an annual pacity of 22.500 tons, are expected go into production in October, 1954.

## alvanizing Operations Cut

A letter of intent was signed with e Volcan M nes Co., Lima, Peru, hich will assure the United States for a three-year period the entire output of the company's rich zinc deposit located in the mountains of Ticlio, Peru.

The proposed contract calls for the company to build a $750,000 concentrating mill with a monthly capacity of 1500 tons of 60 per cent zinc concentrate at the site of the mine. The entire output will be shipped to smelters in the United States where it will be processed into about 765 tons of slab zinc a month.

The government agrees to purchase 50 per cent of the slab zinc, up to a maximum of 380 tons a month for three years, or a total of 13,680 tons, at 17.5c a pound, f.o.b. smelter. Remainder of the output will be sold commercially in the United States by the company at the same price.

The concentrating mill is scheduled for completion about Jan. 1, 1953.

While this agreement is important from the viewpoint of this nation's future zinc needs, it is of no value in correcting the present acute shortage. Galvanizing operations will be curtailed sharply in October and for several subsequent months. Recent work stoppages caused a loss of about 17,000 tons of zinc in September and will further reduce October production by at least 12,000 tons.

Galvanized sheet producers must determine the amount by which anticipated production for each month will fall below directed production for that month. After deducting from the total purchase orders for galvanized sheets for a calendar month the orders received on NPA directives, military and Atomic Energy Commission orders, producers will divide the resultant shortage proportionately among warehouse orders as a class, further converters as a class, and all other orders as a class.

## Lead Supplies Tighten

Lead supplies are much tighter as a result of the late summer strikes. Lead allocation authorizations to consumers for October shipment will be smaller than those originally planned for September. Requests for metal are several times the tonnage that will be available.

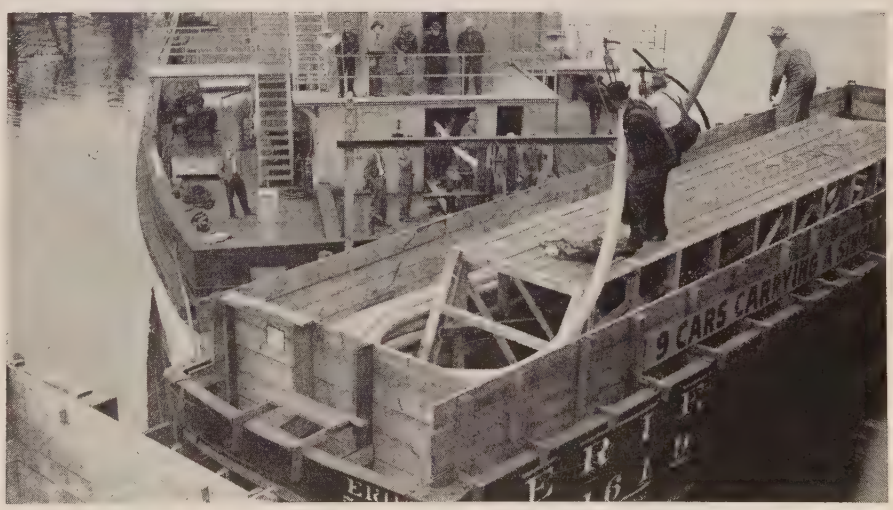
To supplement domestic supplies, government officials are negotiating with the Canadian government on means of increasing the flow of lead to the United States. Stocks of refined lead dropped to only 24,997 tons at the end of August, the lowest since September, 1948. With production declining to only 31,756 tons from 44,864 tons in July, domestic shipments were limited to 40,252 tons.

## Tin Restriction Extended

Current limitations on the use of pig tin have been extended to succeeding calendar quarters. In the former order, M-8, restrictions were limited to the third quarter only. All other provisions of M-8 remain in effect.

Future tin prices will be determined by decisions reached in meetings between RFC officials and Bolivian interests in Washington and those being held in Rome by the International Tin Study Group.

World tin production in July is estimated at 13,600 tons compared with 13,700 tons in June.




VOLTS UNDER THE SEA: Shown being pulled aboard the cable laying ship is one of the world's largest underwater cables. Made by Okonite Co., Passaic, N. J., for Bonneville Power Administration, the cable supplies electric power at 25,000 volts to the San Juan Island Group, Washington. Used in producing the cable were 111,200 pounds or 1400 miles of copper wire and 354,500 pounds or 400 miles of Bethanized steel armor wire. The total length of the completed cable is approximately 7½ miles and the total weight approximately 750,000 pounds

# NONFERROUS METALS

(Cents per pound, carlots, except as otherwise noted)

## Primary Metals

**Copper:** Electrolytic 24.50c, Conn. Valley; Lake 24.62½c, delivered.

**Brass Ingots:** 85-5-5-5 (No. 115) 27.25c; 88-10-2 (No. 215) 38.50c; 80-10-10 (No. 305) 32.25c; No. 1 yellow (No. 405) 23.25c.

**Zinc:** Prime western 17.50c; brass special 17.75c; intermediate 18.00c, East St. Louis; high grade 18.85c, delivered.

**Lead:** Common 16.80c; chemical 16.90c; corroding 16.90c, St. Louis.

**Primary Aluminum:** 99% plus, ingots 19.00c, pigs 18.00c. Base prices for 10,000 lb and over. Freight allowed on 500 lb or more but not in excess of rate applicable on 30,000 lb. c.l. orders.

**Secondary Aluminum:** Piston alloys 20.50c; No. 12 foundry alloy (No. 2 grade) 19.50c; steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 18.00c; grade 2, 17.75c; grade 3, 17.25c; grade 4, 16.50c.

**Magnesium:** Commercially pure (99.8%) standard ingots, 10,000 lb and over 24.50c, f.o.b. Freeport, Tex.

**Tin:** Grade A, prompt 103.00.

**Antimony:** American 99-99.8% and over but not meeting specifications below 42.00c; 99.8% and over (arsenic 0.05% max.; other impurities 0.1% max.) 42.50c; f.o.b. Laredo, Tex., for bulk shipments.

**Nickel:** Electrolytic cathodes, 99.9%, base sizes at refinery, unpacked, 56.50c; 25-lb pigs, 59.15c; "XX" nickel shot, 60.15c; "F" nickel shot or ingots, for addition to cast iron, 56.50c. Prices include import duty.

**Mercury:** Open market, spot, New York, $215-$221 per 76-lb flask.

**Beryllium-Copper:** 3.75-4.25% Be, $1.56 per lb of alloy, f.o.b., Reading, Pa.

**Cadmium:** "Regular" straight or flat forms, $2.55 del.; special or patented shapes $2.80.

**Cobalt:** 97.99%, $2.10 per lb for 500 lb (kegs); $2.12 per lb for 100 lb (case); $2.17 per lb under 100 lb.

**Gold:** U. S. Treasury, $35 per ounce.

**Silver:** Open market, New York 90.16c per oz.

**Platinum:** $90-$93 per ounce from refineries.

**Palladium:** $24 per troy ounce.

**Iridium:** $200 per troy ounce.

**Titanium (sponge form):** $5 per pound.

## Rolled, Drawn, Extruded Products

### COPPER AND BRASS

(Ceiling prices, cents per pound, f.o.b. mill; effective Aug. 23, 1951)

**Sheet:** Copper 41.68; yellow brass 38.28; commercial bronze, 95% 41.61; 90% 41.13; red brass, 85% 40.14; 80% 39.67; best quality, 39.15; nickel silver, 18%, 53.14; phosphor-bronze grade A, 5%, 61.07.

**Rod:** Copper, hot-rolled 37.53; cold-drawn 38.78; yellow brass free cutting, 32.63; commercial bronze, 95%, 41.30; 90%, 40.82; red brass 85%, 39.83; 80%, 39.36.

**Seamless Tubing:** Copper 41.72; yellow brass 41.29; commercial bronze, 90%, 43.79; red brass, 85% 43.05.

**Wire:** Yellow brass 38.57; commercial bronze, 95%, 41.90; 90%, 41.42; red brass, 85%, 40.43; 80%, 39.96; best quality brass, 39.44.

(Base prices, effective Nov. 6, 1950)

**Copper Wire:** Bare, soft, f.o.b. eastern mills, c.l. 28.67-30.42; l.c.l. 29.17-30.92; 100,000 lb lots 28.545-30.295; weatherproof, f.o.b. eastern mills, c.l. 29.60-30.60, l.c.l. 30.10-31.10, 100,000 lb lots 29.35-30.35; magnet, del., 15,000 lb or more 34.50c, l.c.l. 35.25.

### ALUMINUM

(30,000 lb base; freight allowed on 500 lb or more, but not in excess of rate applicable on 30,000 lb c.l. orders)

**Sheets and Circles:** 2S and 3S mill finish c.l.

| Thickness Range Inches | Widths or Diameters, In., Inc. | Flat Sheet Base* | Coiled Sheet Base | Coiled Sheet Circle† Base |
|---|---|---|---|---|
| 0.249-0.136 | 12-48 | 30.1 | ... | ... |
| 0.135-0.096 | 12-48 | 30.6 | ... | ... |
| 0.095-0.077 | 12-48 | 31.2 | 29.1 | 33.2 |
| 0.076-0.061 | 12-48 | 31.8 | 29.3 | 33.4 |
| 0.060-0.048 | 12-48 | 32.1 | 29.5 | 33.7 |
| 0.047-0.038 | 12-48 | 32.5 | 29.8 | 34.0 |
| 0.037-0.030 | 12-48 | 32.9 | 30.2 | 34.6 |
| 0.029-0.024 | 12-48 | 33.4 | 30.5 | 35.0 |
| 0.023-0.019 | 12-36 | 34.0 | 31.1 | 35.7 |
| 0.018-0.017 | 12-36 | 34.7 | 31.7 | 36.6 |
| 0.016-0.015 | 12-36 | 35.5 | 32.4 | 37.6 |
| 0.014 | 12-24 | 36.5 | 33.3 | 38.9 |
| 0.013-0.012 | 12-24 | 37.4 | 34.0 | 39.7 |
| 0.011 | 12-24 | 38.4 | 35.0 | 41.2 |
| 0.010-0.0095 | 12-24 | 39.4 | 36.1 | 42.7 |
| 0.009-0.0085 | 12-24 | 40.6 | 37.2 | 44.4 |
| 0.008-0.0075 | 12-24 | 41.9 | 38.4 | 46.1 |
| 0.007 | 12-18 | 43.3 | 39.7 | 48.2 |
| 0.006 | 12-18 | 44.8 | 41.0 | 52.8 |

* Lengths 72 to 180 inches. † Maximum diameter, 26 inches.

**Screw Machine Stock:** 5000 lb and over.

| Dia. (in.) or distance across flats | —Round— R317-T4, 17S-T4 | —Hexagonal— R317-T4 | 17S-T4 |
|---|---|---|---|
| 0.125 | 52.0 | .... | .... |
| 0.156-0.0188 | 44.0 | .... | .... |
| 0.219-0.313 | 41.5 | .... | .... |
| 0.375 | 40.0 | 46.0 | 48.0 |
| 0.406 | 40.0 | .... | .... |
| 0.438 | 40.0 | 46.0 | 48.0 |
| 0.469 | 40.0 | .... | .... |
| 0.500 | 40.0 | 46.0 | 48.0 |
| 0.531 | 40.0 | .... | .... |
| 0.563 | 40.0 | .... | 45.0 |
| 0.594 | 40.0 | .... | .... |
| 0.625 | 40.0 | 43.5 | 45.0 |
| 0.688 | 40.0 | .... | 45.0 |
| 0.750-1.000 | 39.0 | 41.0 | 42.5 |
| 1.063 | 39.0 | .... | 41.0 |
| 1.125-1.500 | 37.5 | 39.5 | 41.0 |
| 1.563 | 37.0 | .... | .... |
| 1.625 | 36.5 | .... | 39.5 |
| 1.688-2.000 | 36.5 | .... | .... |

### LEAD

(Prices to jobbers, f.o.b. Buffalo, Cleveland, Pittsburgh) Sheets: Full rolls, 140 sq ft or more $22.00 per cwt; add 50c cwt 10 sq ft to 140 sq ft. Pipe: Full coils $22.00 per cwt. Traps and bends: List prices plus 60%.

### ZINC

Sheets, 24.50c, f.o.b. mill 36,000 lb and over. Ribbon zinc in coils, 23.00c, f.o.b. mill, 36,000 lb and over. Plates, not over 12-in., 23.50-24.50c; over 12-in., 23.50-24.50c.

### "A" NICKEL

(Base prices f.o.b. mill)

Sheets, cold-rolled, 77.00c. Strip, cold-rolled, 83.00c. Rods and shapes, 73.00c. Plates, 75.00c. Seamless tubes, 106.00c.

### MONEL

(Base prices, f.o.b. mill)

Sheets, cold-rolled 60.50c. Strip, cold-rolled 63.50c. Rods and shapes, 58.50c. Plates, 59.50c. Seamless tubes, 93.50c. Shot and blocks, 53.50c.

### MAGNESIUM

Extruded Rounds, 12 in. long, 1.31 in. in diameter, less than 25 lb, 55.00-62.00c; 25 to 99 lb, 45.00-52.00c; 100 lb to 5000 lb, 41.00c.

### TITANIUM

(Prices per lb, 10,000 lb and over, f.o.b. mill) Sheets, $15; sheared mill plate, $12; strip, $15; wire, $10; forgings, $6; hot-rolled and forged bars, $6.

## DAILY PRICE RECORD

| 1951 | Copper | Lead | Zinc | Tin | Aluminum | Antimony | Nickel | Silver |
|---|---|---|---|---|---|---|---|---|
| Sept. 1-27 | 24.50 | 16.80 | 17.50 | 103.00 | 19.00 | 42.00 | 56.50 | 90.16 |
| Aug. 1-31 | 24.50 | 16.80 | 17.50 | 103.00 | 19.00 | 42.00 | 56.50 | 90.16 |
| Aug. Avg. | 24.50 | 16.80 | 17.50 | 103.00 | 19.00 | 42.00 | 56.50 | 90.16 |
| July Avg. | 24.50 | 16.80 | 17.50 | 106.00 | 19.00 | 42.00 | 56.50 | 90.16 |
| June Avg. | 24.50 | 16.80 | 17.50 | 117.962 | 19.00 | 42.00 | 56.50 | 88.492 |
| May Avg. | 24.50 | 16.80 | 17.50 | 139.923 | 19.00 | 42.00 | 50.50 | 90.16 |
| Apr. Avg. | 24.50 | 16.80 | 17.50 | 145.735 | 19.00 | 42.00 | 50.50 | 90.16 |
| Mar. Avg. | 24.50 | 16.80 | 17.50 | 145.730 | 19.00 | 42.00 | 50.50 | 90.16 |
| Feb. Avg. | 24.50 | 16.80 | 17.50 | 182.716 | 19.00 | 42.00 | 50.50 | 90.16 |
| Jan. Avg. | 24.50 | 16.80 | 17.50 | 171.798 | 19.00 | 35.462 | 50.50 | 88.890 |

NOTE: Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. St. Louis; Zinc, prime western, E. St. Louis; Tin, Straits, del. New York; Aluminum primary ingots, 99%, del; Antimony, bulk, f.o.b. Laredo, Tex.; Nickel, electrolytic cathodes, 99.9%, base sizes at refinery unpacked. Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.

## Plating Materials

**Chromic Acid:** 99.9% flakes, f.o.b. Philadelphia, carloads, 27.00c; 5 tons and over 27.50c; 1 to 5 tons, 28.00c; less than 1 ton 28.50c.

**Copper Anodes:** Base 2000 to 5000 lb; f.o.b. shipping point, freight allowed: Flat, rolled 38.34c; oval 37.84c.

**Nickel Anodes:** Rolled oval, carbonized, carloads, 74.50c; 10,000 to 30,000 lb, 75.50c; 3000 to 10,000 lb, 76.50c, 500 to 3000 lb 77.50c; 100 to 500 lb, 79.50c; under 100 lb, 82.50c f.o.b. Cleveland.

**Nickel Chloride:** 36.50c in 100 lb bags; 34.50 in lots of 400 lb through 10,000 lb; 34.00 over 10,000 lb, f.o.b. Cleveland, freight allowed on 400 lb or more.

**Sodium Stannate:** 25 lb cans only, less than 100 lb, to consumers 77.7c; 100 or 350 lb drums only, 100 to 600 lb, 63.1c; 700 to 1900 lb, 60.6c; 2000 to 9900 lb, 58.9c. Freight allowed east of Mississippi and north of Ohio and Potomac rivers.

**Tin Anodes:** Bar, 1000 lb and over, $1.19; 500 to 999 lb, $1.195; 200 to 499 lb, $1.20; less than 200 lb, $1.215. Freight allowed east of Mississippi and north of Ohio and Potomac.

**Zinc Cyanide:** 100 lb drums, less than 1000 drums 47.7c, 10 or more drums, 45.7c, f.o.b. Niagara Falls, N. Y.

**Stannous Sulphate:** 100 lb kegs or 400 lb bbl less than 2000 lb $1.0009; more than 2000 lb 98.09c. Freight allowed east of Mississippi and north of Ohio and Potomac rivers.

**Stannous Chloride (Anhydrous):** In 400 lb bbl 87.23c; 100 lb kegs 88.23c. Freight allowed.

## Scrap Metals

### Brass Mill Allowances

Ceiling prices in cents per pound for less than 20,000 lb, f.o.b. shipping point, effective June 26, 1951.

| | Clean Heavy | Rod Ends | Clean Turnings |
|---|---|---|---|
| Copper | 21.50 | 21.50 | 20.75 |
| Yellow Brass | 19.125 | 18.875 | 17.875 |
| Commercial Bronze | | | |
| 95% | 20.50 | 20.25 | 19.75 |
| 90% | 20.50 | 20.25 | 19.75 |
| Red Brass | | | |
| 85% | 20.25 | 20.00 | 19.625 |
| 80% | 20.125 | 19.875 | 19.375 |
| Muntz metal | 18.125 | 17.875 | 17.375 |
| Nickel silver, 10% | 21.50 | 21.25 | 10.75 |
| Phos. bronze, 5% | 25.25 | 25.00 | 24.00 |

### Copper Scrap Ceiling Prices

(Base prices, cents per pound, less than 40,000 lb f.o.b. point of shipment)

Group I: No. 1 copper 19.25; No. 2 copper wire and mixed heavy 17.75; light copper 16.50; No. 1 borings 19.25; No. 2 borings 17.75; refinery brass, 17.00 per lb of dry Cu content for 50 to 60 per cent material and 17.25 per lb for over 60 per cent material. Group II: No. 1 soft red brass solids 19.50; No. 1 composition borings 19.25 per lb of Cu content plus 83 cents per lb of tin content; mixed brass borings 19.25 per pound of Cu content plus 78 cents per lb of tin content; unlined red car boxes 19.25; lined red car boxes 18.25; cocks and faucets 16.75; mixed brass screens 16.00; zincy bronze solids and borings 16.25.

### Zinc Scrap Ceiling Prices

(Cents per pound, f.o.b. point of shipment)

Unsweated zinc dross, 12.25c; new clippings and trimmings, 14.50c; engravers' and lithographers' plates, 14.50c; die cast slabs, min 90% zinc, 12.25c; old zinc scrap, 11.25c; forming and stamping dies, 11.25c; new die cast scrap, 10.75c; old zinc die cast radiator grills 10.50c; old die cast scrap, 9.50c.

### Lead Scrap Ceiling Prices

(F.o.b. point of shipment)

Battery lead plates, 17.00c per lb of lead and antimony content, less smelting charge of cents per lb of material in lots 15,000 lb or more; less 2.25c in lots less than 15,000 lb. Used storage batteries (in boxes) drained of liquid, 6.60c for 15,000 lb or more; 6.40c for less than 15,000 lb. Soft lead scrap, hard lead scrap, battery slugs, cable lead scrap or lead content of lead-covered cable scrap, 15.25 per lb. In addition, brokerage commissions are permitted.

### Aluminum Scrap Ceiling Prices

(Cents per pound, f.o.b. point of shipment, less than 5000 lb)

Segregated plant scrap: 2s solids, copper free 10.50, high grade borings and turnings, 8.50; No. 12 piston borings and turnings, 7.50. Mixed plant scrap: Copper-free solids, 10.00 dural type, 9.00; Obsolete scrap: Pure old cable, 10.00; sheet and sheet utensils, 7.25; old castings and forgings, 7.75; clean pistons, free of struts, 7.75; pistons with struts, 5.75.

## lates . . .

Plate Prices, Page 141

**Boston**—First quarter allocation of ates under CMP thus far is on a ore realistic basis. However, de- nse requirements are mounting with nnage for less important needs ntracting. Six fleet oilers will be ilt from prototype design by ncy yard, Bethlehem Steel Co.

**Philadelphia** — Squeeze in plates ntinues, with fourth quarter can- llations to date practically nil and ills accepting nothing for delivery yond first quarter except highly ted defense requirements.

**Pittsburgh**—Considerable carryover expected from month to month over mainder of this year. Anticipated ncellations on existing orders have iled to develop. NPA's request at carryovers be eliminated by Jan. will necessitate shaving all fourth arter orders.

## heets, Strip . . .

Sheet and Strip Prices, Page 141 & 142

**New York**—Pressure for enameling ock is definitely off in some lines of nsumer durable goods, such as re- igerators, washing machines and s ranges. Few order concellations e reported to date but there may some loosening in this regard be- re yearend. Most manufacturers of rable goods report distributors well ocked and expect their operations taper further.

Nor have there been many can- llations to date in any major grade sheets, despite word from Wash- gton there likely will be some fair tbacks by consumers who specified ore fourth quarter tonnage than ey were allotted by NPA.

Interesting in this broad regard has en release by the Defense depart- ent and the Atomic Energy Com- ission of approximately 20 million unds of stainless steel, including 0,000 pounds of nickel bearing steel, r fourth quarter, due to an overesti- ation of needs for that period. Nick- bearing steel has been in particu- rly tight supply and word that 0,000 pounds is to be made avail- le for non-military purposes in urth quarter has resulted in a flur- of inquiry from manufacturers of tomobiles and consumer durables nerally.

**Boston**—Silicon sheet demand has opped below available supply with enings in small motor grades for ovember and December. January lotments fail to account for all nnage available. Situation in this ade is the exception in flat-rolled. Regional CMP approval for small t orders is so heavy in aggregate any schedules are filled through nuary with some CMP allotments placed.

**Philadelphia**—Sheet mills are mov- g cautiously in accepting tonnage r first quarter, and are showing interest in specifications beyond, cept "must" defense tonnage. Most oducers expect little in the way of urth quarter cancellations in the ajor grades. Despite recent easing pressure from manufacturers of me consumer durable lines, specifi- tions are picking up again.

**Pittsburgh**—Cutbacks in existing

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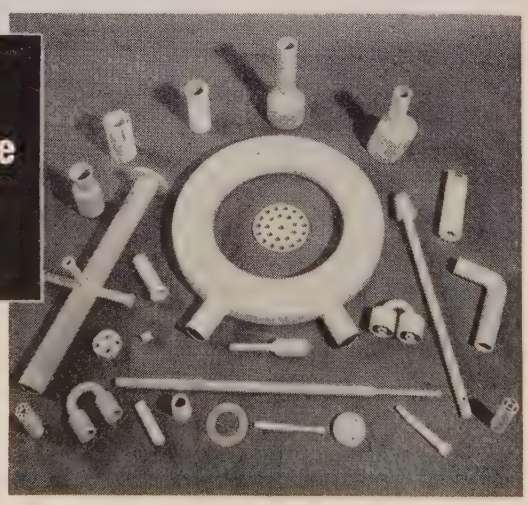

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Carbon and sulphur analysis work goes smoothly and economically with McDanel Porcelain Combustion Tubes and Zirco Tubes. McDanel Tubes have long life and never spall or blister. Complete range of sizes.

Many of America's foremost instrument manufacturers as well as scientists, research workers and specialized producers depend on McDanel to supply porcelain parts to meet the special requirements of their work.

The McDanel Company not only fabricates parts to your specifications, but develops the proper porcelain body for the application you may have.

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orders are not developing in the volume expected. Considerable carryover is indicated for each remaining month this year. Trade opinion is mill schedules will not be cleared of carryover by Jan. 1 as NPA requested. Paradoxically, the carryover condition resulted from over-allocation by NPA for third quarter this year. Now NPA wants it eliminated by yearend. No indication of slackening demand is present here as mills book direct defense orders for first quarter 1952 and hold lesser orders in abeyance pending developments.

**Cleveland**—Galvanized sheets are in tightest supply of the light flat rolled products. And they will become even scarcer over coming months. Under latest directions of the National Production Authority output will be further limited beginning in October because of the shortages of zinc. Work stoppages caused a loss of 17,000 tons of zinc in September and will result in additional loss of 12,000 tons in October.

**Cincinnati** — Sheet mills will be pushed to deliver all tonnage on fourth quarter schedules. Rated orders for first quarter are numerous.

**Birmingham**—Sheet users lacking directives are out of luck since the mills have no excess tonnage. It is reported that choice has had to be made between some customers with certificates in view of the fact the entire outfit is accounted for.

**Los Angeles**—Sheet and strip shortage is settling heavily upon district fabricators. Despite a tight labor market, worker layoffs due to lack of work caused by inability to procure shipments on time or at all are up to ⅓ of total personnel at some plants. Some fabricators unable to secure defense business, are closing their doors.

## Reinforcing Bars . . .

Reinforcing Bar Prices, Page 141

**Chicago**—Many jobs may be stymied by lack of reinforcing bars and related items. Contractors' requests for even small lots are failing to get Washington approval.

## Wire . . .

Wire Prices, Page 143

**Chicago**—Wire rope supply is adequate. Orders are at low level. Some pickup is anticipated with increased coal mining in Illinois and Indiana. Poor corn crops in Iowa has reduced demand for wire mesh cribs. Distributors take all coiled baling wire they can get but are curbing acceptance of bale ties to balance needs. Nail stocks are fair but barbed wire and woven fence are short.

**Boston**—Wire supply is improving. Carbon wire inventories are heavier and, while there are some tight spots, pressure is off with scattered cancellations and deferments. Actually some selling effort is required to round out November and December schedules.

**New York**—Mild slackening in demand for high carbon specialties is attributed to lower consumption in some cases and inventory limitations in others. This prompts deferments rather than outright cancellations. Automotive requirements have been adjusted to lower fourth quarter as-

mblies and some valve spring wire s been held up. Precision spring vol- ıe is also off, exceptions being sev- ıl spring shops with large direct fense contracts, notably fuzes.

## in Plate . . .

Tin Plate Prices, Page 142

**Pittsburgh** — Domestic container oducers may get an additional 100,- 0 tons of tin plate in fourth quarter they can prove need. NPA has ıde no commitment concerning po- ıtial tonnage over entire fourth arter requirements, but allocations ll be forthcoming soon. Tin plate oducers will satisfy all CMP allot- ents for fourth quarter and have ınage remaining. Tin supplies are equate but difficulty is encountered ıintaining inventories.

## tructural Shapes . . .

Structural Shape Prices, Page 141

**New York** — August structural okings were 211,998 tons, off 5 per ıt from the July total of 223,130 ıs, reports the American Institute Steel Construction. Bookings in st eight months of 2,163,922 tons e up 10 per cent over correspond- g period of 1950.

Shipments were 240,072 tons, only ghtly less than the June record of 7,066 tons, largest month since 30. Shipments for first eight nths amounted to 1,814,116 tons, in of 24 per cent over last year.

Order backlogs as of Aug. 31 ıounted to 1,184,490 tons for the lowing four months and another 63,825 tons for shipment beyond at period, or potential volume ahead 2,748,315 tons.

**Boston**—Not until fabricated struc- ral steel required for military and -rated industrial plant expansion shipped will the shortage ease for s important construction. This ans fourth quarter, 1952. Public rks under contract, bridges in- ıded, will be set back and next ar's programs delayed. Rejected dge jobs to be readvertised in this ea approximate 23,000 tons.

**New York** — Structural demand ows little improvement. Aside from ne bridge work and a few other blic projects, inquiry is decidedly w. There are so many uncertain- s as to materials supply and costs ce supplies do ease, builders are sitant to go ahead. Shortage of apes may ease somewhat after turn the year. Meanwhile, fabricators ubt if they will be able to obtain ough plain material, plates and bars well as shapes, to sustain opera- ns in fourth quarter.

**Pittsburgh**—Little supply relief in ructurals is likely before fourth arter 1952. Industrial expansion d public works construction is ex- cted to decrease by then. Apart m industrial and public work little ınage is being placed.

**Chicago** — Structurals shortage reatens much highway construction. definite delay faces this city's $5 llion elimination of the Foster Ave. ttleneck on Lake Shore drive sched- ed for 1953 completion. Of 3000 ıs of steel requested for a bulk- ad the government has set aside ly 254 tons for second quarter. out 10 days beam production was

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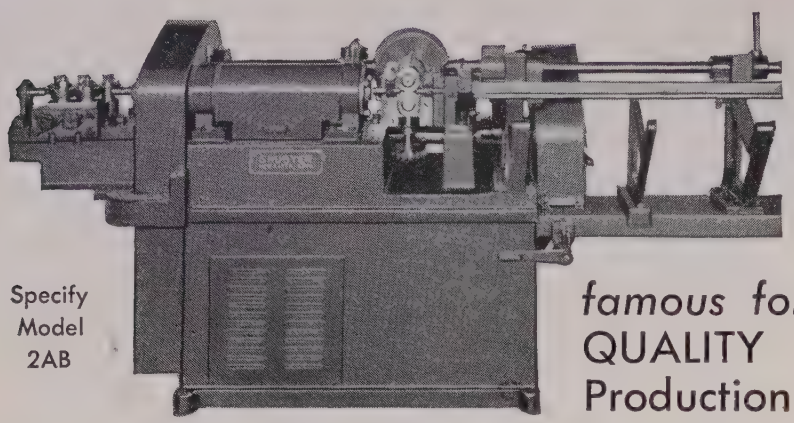

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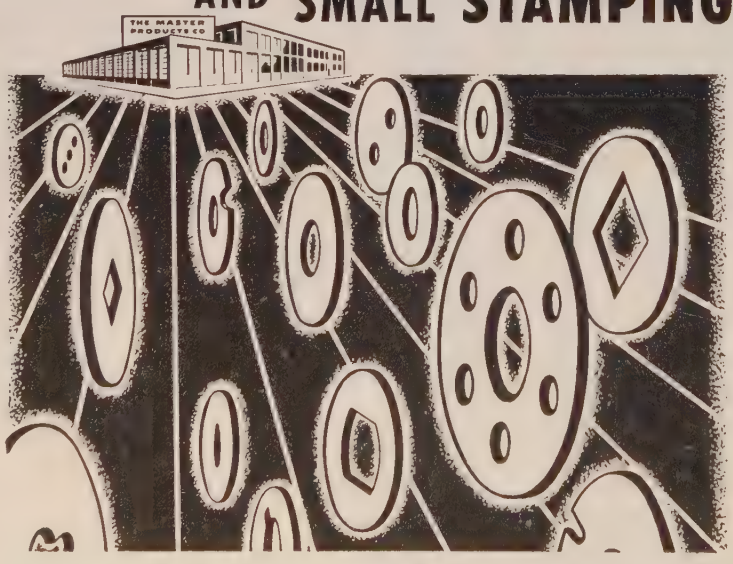


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## Semifinished Steel . .

Semifinished Prices, Page 141

**Birmingham**—Operations at t Tennessee Coal, Iron & Railroad C are back to normal after an 18-da strike of workers on the Birmin ham Southern railroad which close down several mills and two bla furnaces.

## Steel Bars . . .

Bar Prices, Page 141

**New York**—Hot carbon bar pr ducers are adhering to their policy accepting little tonnage for rollin beyond first quarter except f "must" military requirements. The are receiving requests from buye with CMP ratings for shipments a late as third quarter, but in practica ly all cases their orders are being r turned on the theory few can definit ly foresee their needs that far ahea Even on requests for first quarte tonnage sellers are moving conserva tively until there is more definit word as to what NPA is going to a locate for the period. The gover ment recently sent out first quarte allotment applications which are to b returned by Oct. 1.

**Boston**—Carbon and alloy bars ar building up greater demand for d rect defense, notably small arm One typewriter plant is tooling up fo rifles, also one textile mill equipmen builder will produce machine gun and parts. Meanwhile Springfiel armory is placing substantial orde for barrel blanks, one to Republi Steel Corp., $81,770.

**Philadelphia**—What relatively fe openings have appeared in carbo bar schedules for fourth quarter hav been quickly filled in, with much ex cess inquiry still going begging.

**Pittsburgh**—Carbon bars are th scarcest steel product in this are Converters dimly view future pros pects for hot bar supplies. Cold-fi ished bars are in slightly better su ply, however. Alloy bars, especiall nickel, are virtually unobtainabl Critical alloy supply conditions are n likely to improve in the near futur

**Cleveland**—Tight supply condition in the merchant bar market promis to extend well into 1952. Currentl some producers are booking orde cautiously for first quarter and in dicate they will accept tonnage onl on military account for later shi ment. Predicted cancellations of du licate orders have not come to th barmakers in any appreciable volum

## Iron Ore . . .

Iron Ore Prices, Page 147

**Cleveland**—Lake shippers are in creasingly confident that this sea son's ore movement will exceed 9 million tons and may come close t the record of slightly over 92 millio tons for 1942. The season's tot movement to Sept. 24 is 68,758,85 tons, or 12,628,438 tons greater tha the 56,130,415 tons recorded for th like 1950 period. Shipments for th week ended on the same date came t 2,997,873 tons against 2,760,296 to for the like week a year ago. Wit

aid of a bigger and faster ore
t, shippers hope to at least equal
ord shipments for the last three
nths in the year. These are 11,-
,000 tons for October, 7,660,000 for
vember and 835,000 tons for De-
nber.

**Hamilton, Ont.**—Dominion Found-
& Steel Ltd. will begin construc-
n soon of a second ore bridge on
property here. The 300-foot span
y be completed in time for opening
the 1952 shipping season.

## etallurgical Coke . . .

Metallurgical Coke Prices, Page 145

**Chicago**—Easiness in metallurgical
e continues. Increased production
declining consumption is respon-
e.

## g Iron . . .

Pig Iron Prices, Page 140

**Cleveland**—Merchant iron sellers
ect demand pressure to rise
adily from here on in step with
anding defense requirements for
tings. Additional foundries are
ting into defense work, but the
ck resulting from the contraction
civilian durable goods production
l remains to be taken up. Most
ive foundries at present are those
aged on castings for the machine
l and machinery industries.
There is little chance iron supply
ditions will materially improve
r coming months. Currently, one
ck normally supplying the mer-
nt trade is down for repairs, and
s suspension is adding to the bur-
on other merchant iron suppliers.
Republic Steel Corp. blew-out No.
stack for relining Sept. 22. This
ck has been producing basic iron.
will be out 4 to 5 weeks.
An important recent development
the trade is announcement by In-
ake Iron Corp., with headquarters
this city, to the effect it plans
expansion program aimed at boost-
its pig iron capacity by 23 per-
t. The program calls for mod-
izing and enlarging blast fur-
es at Chicago and Erie, Pa., and
ning and improving a second fur-
e at Chicago. These improve-
nts will raise Interlake's pig iron
acity to 1,620,000 net tons ann-
y from the present 1,320,000 net
s.

**Boston**—Machine tool is the one in-
try from which pig iron demand is
anding. Most others are standing
or losing ground, exceptions be-
the few foundries with direct ar-
ment contracts. Machine tool
ders are booking heavy orders or
otiating for them. Bullard Co.
a $33-million order while other
dgeport shops have taken $1.3-
lion additional.

**New York**—Few pig iron consum-
have the full 30 day inventories
mitted under government regula-
ns. Accordingly they are trying to
d up their stocks. Some have less
n two weeks supply on hand. Gray
foundries report heavier order
klogs and anticipate a more active
son as fall progresses. One boon
operations for some time past has
n a fairly free supply of cast scrap.

**Buffalo**—Building equipment and
or casters are vieing with gov-
ment contractors for merchant

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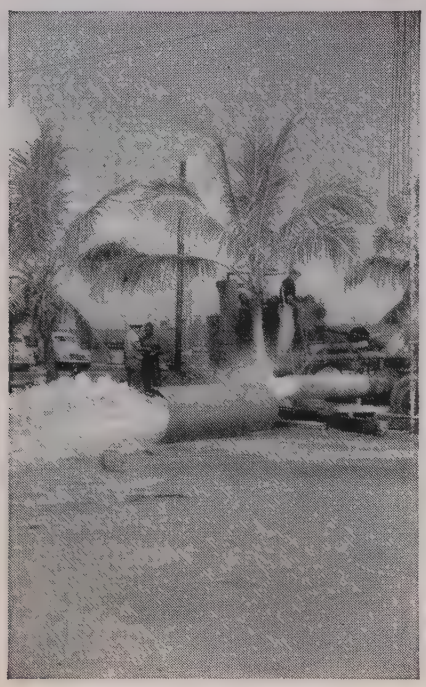

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iron stocks. Increased defense work combined with the shutdown of a stack here have added to the supply stringency. Additional shipments of Swedish iron ore are reported.

**Philadelphia**—While some imported tonnage is being received against old contracts, few new orders for foreign pig iron are noted. This is due to stiff premiums, uncertainty as to deliveries, and in some cases quality. Demand for domestic iron continues in excess of supply.

**Pittsburgh**—Pig iron supplies are generally adequate throughout the area. Inventories are not large but major worry of melt shops is not pig iron so much as scrap. Merchant suppliers maintain equitable distribution. In specialty grades and alloys, the supply situation is slightly more stringent and purchasers must wait their turn, all having virtually no inventory. Presently all 54 of the district's blast furnaces are in operation. One stack at United States Steel Co.'s Duquesne Works may be taken off for repairs shortly.

**Chicago**—Demand for pig iron is not quite as strong as 30 days ago. Easing is result of component parts inventory reductions on part of some large manufacturers notably farm equipment, strikes, reduced operation of automobile makers and lessened activity of jobbing foundries. Of the districts 42 blast furnaces 41 are now operating.

**Los Angeles**—Records were broken in August at the Fontana plant of Kaiser Steel Corp. New production records set at Fontana in August include those for low coke consumption, pig iron and semifinished steel output. No 1 blast furnace averaged 1327 pounds of coke per ton of iron and No. 2 blast furnace 1358 pounds; 30 per cent below the national average of 1900 pounds of coke per ton of iron. Pouring by Fontana's two blast furnaces of 83,200 tons of hot-metal in 31 days exceeded combined rated capacity of 74,400 tons by 11 per cent.

## Scrap . . .

Scrap Prices, Page 148

**Pittsburgh**—Upping of scrap ceiling prices is suggested in some market circles as a likely spur to bringing out material. Dealers here think there is very little scrap held out for higher prices, however and that an increase would not be particularly effective in increasing scrap flow.

**Philadelphia**—Critical situation is developing among district consumers of steel scrap, due to material moving west, much at upgraded levels. Some district mills have less than a week's supply and while they are being given allocations they are finding, it is said, that much open hearth tonnage has and is being shipped inland against premium foundry steel orders.

**Boston**—Scrap drive is estimated to have brought out approximately 22,000 tons which might otherwise be dormant. This has helped in the steel scrap shortage but little with inventories of most melters low. Not enough light scrap is reaching yards to keep presses near capacity.

**New York**—Demand pressure for steel scrap is heavy with consumers scarcely able to sustain inventories, to say nothing of building them u for winter. Trade leaders believ much could be accomplished toward stimulating the flow by action of th Office of Price Stabilization in estab lishing the major open hearth grade at one price level—a level at leas not below the present market fo No. 1 heavy melting steel.

**Buffalo**—Local scrap market as sumed a more normal pattern wit the mills again receiving materia from local dealers who had been a locating supplies to other point Mills are hopeful of replenishin stockpiles for future months. Co lections are holding up favorably i the territory. Revival in water ship ments is slow in developing. Cast of ferings continue ample.

**Detroit**—Not enough attention i being paid to segregation of nicke and chrome bearing scrap. Dealer say larger companies watch this bu small ones generally overlook it. Con trol of scrap through allocation ha widened and the only grades no scarce are for blast furnace use.

**Cincinnati**—District mills are mak ing no headway building scrap stocks Supplies are barely adequate to main tain the high melting rate.

**Chicago**—The spotlight is on th various scrap collection drives. Opti mism is expressed over ultimate suc cess of these. However, this optimism does not conceal the anxiety of stee plants and foundries concerning pos sibility of cutbacks this winter be cause of insufficient melting material

**Birmingham**—Heavy melting stee continues tight with the district' largest user being taken care o through allocation. Cast grades hav tightened considerably.

**Los Angeles**—Supply of scrap i tight. Mill inventories are steadil deteriorating.

## Warehouse . . .

Warehouse Prices, Page 147

**Cleveland**—Warehouse operators i this area are encouraged by NPA ac tion in raising their steel quotas t 100 per cent of base period receipt on carbon and alloy steels. The in crease does not become effective un til first quarter next year, however and means nothing so far as curren supplies are concerned. As a matte of fact, it is doubtful if the increas in quotas will be sufficient to offse the loss of tonnage heretofore avail able to the distributors in the so called "free" area of supply, elim inated with the closing up of th open-end of the Controlled Material Plan.

**New York**—Warehouse sales vol ume is limited to receipts from mill with inventories 40 per cent or les of normal. Increase in allocations t distributors, first quarter, to 100 pe cent minimum of base period tonnage includes all products, alloys and stain less as well as carbon. Bulk of stain less allotments will be in chromium grades.

**Philadelphia**—While not in receip of official text, said to be in hand of government printers, warehouse are advised quotas will be stepped u to 100 per cent of the base period o the first nine months of last year effective Jan. 1, against 85 per cen at present.

**Pittsburgh**—Distributors' inventor

oblems are the same from month to onth. When stocks can be built up ghtly they are very unbalanced, t they are seldom built up to the int they can be called an inventory. ceipts show no signs of falling be- v the NPA 85 per cent minimum se period level but volume of busi- ss in warehouse items has increased eatly over base period levels.

**Los Angeles**—Inquiries for ware- use steel are depressed but with tributors' badly unbalanced stocks, to 40 per cent of normal, gap be- een demand and supply is widening.

## ails, Cars . . .

Track Material Prices, Page 143

**New York**—Featuring the railroad uipment market is purchase of 261 sel-electric units, costing approxi- tely $35 million, by the New York ntral railroad, with 24 for its affili- d line, Pittsburgh & Lake Erie. der also has been placed for 1000 enty-ton gondolas by the Norfolk Western.

**Philadelphia** — Rail inquiries for 52 are coming out with the Pennyl- nia closing bids Oct. 3 for 100,000 s. Bids on accessories for 1952 l be asked shortly.

**Montreal, Que.**—Canadian Pacific ilway Co. placed orders with Cana- n companies for more than $50 llion worth of equipment to be de- ered in 1952. The orders were for diesel-electric locomotives, 4250 ight cars and 50 units of head- d passenger equipment.

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## STRUCTURAL SHAPES . . .

### STRUCTURAL STEEL PLACED

2750 tons, municipal viaduct, Russell street, Baltimore, to Bethlehem Steel Co.

2640 tons, piling, three bridges for Delaware River Toll Bridge Commission, to Bethlehem Steel Co.

1700 tons, power plant, Narragansett Electric Co., Providence, R. I., to Lehigh Structural Steel Co., Allentown, Pa., through New England Power Co., parent organization.

630 tons, building, St. Vincent's Hospital, Worcester, Mass., to United Structural Steel Co., Worcester, through Granger Construction Co., Worcester, general contractor.

600 tons, outside crane runway, Corps of Engineers, Tullahoma, Tenn., to Decatur Iron & Steel Co., Decatur, Ala.

575 tons, buildings, Our Lady of Fatima Hospital, Providence, R. I., to A. O. Wilson Structural Co., Cambridge, Mass.; Gilbane Building Co., Providence, general contractor; 165 tons bar joists to Bethlehem Steel Co.

380 tons, plant addition, Norden Co., Milford, Conn., to Bethlehem Steel Co.

330 tons, state bridge, Lackawanna county, Pennsylvania, to Pine Brook Iron Works, Scranton, Pa.

275 tons, mill building, Pennsylvania Smelting & Refining Co., Philadelphia, to Bethlehem Steel Co.

250 tons, hospital, Norwalk, Conn., to Harris Structural Steel Co., New York, through William J. Lyons, Norwalk, general contractor.

250 tons, building, Army Ordnance, Boston district, to A. L. Smith Iron Works, Chelsea, Mass.

190 tons, state bridge, Chester county, Pennsylvania, to Easton Steel Structures, Easton, Pa.

### STRUCTURAL STEEL PENDING

178 tons, state bridge, Indiana county, Pennsylvania; bids Oct. 11.

## REINFORCING BARS . . .

### REINFORCING BARS PLACED

1750 tons, housing project PHA 2-20, Columbia Point, Dorchester district, Boston, to Truscon Steel Co., Boston, through Coleman Bros. Corp., that city, general contractor.

1700 tons, three bridges, Delaware River Toll Bridge Commission, to Bethlehem Steel Co.

1600 tons, building, St. Vincent's Hospital, Worcester, Mass., to Tucker & Fox Co., Boston, through Granger Construction Co., Worcester, general contractor.

645 tons, Harms road interceptor sewer, contract No. 1, Northfield, Ill., to Joseph T. Ryerson & Son Inc., Chicago; Michael Pontarelli Inc., Chicago, contractor.

600 tons, Blue Ridge Summit, Hagerstown, Md., for U. S. Engineer, to United States Steel Supply Co., Chicago.

150 tons, Gordon Park improvements, Cleveland, to United States Steel Supply Co., Chicago.

105 tons, William Dwight Herrick Jr. High School, Downers Grove, Ill., to Concrete Steel Co., Chicago; Schless Construction Co., Inc., Chicago, contractor.

100 tons, buildings, Our Lady of Fatima Hospital, Providence, R. I., to Bethlehem Steel Co.; Gilbane Building Co., Providence, general contractor.

100 tons, elementary school building, Cranston, R. I., to Plantations Steel Co., Providence, R. I.; Dimeo Construction Co., Providence, general contractor.

60 tons, hospital, Norwalk, Conn., to Harris Structural Steel Co., New York, through William J. Lyons, Norwalk, general contractor.

### REINFORCING BARS PENDING

6800 tons, miscellaneous buildings, Army Finance Center, Ft. Benjamin Harrison, Indianapolis; general contract divided between Sherry-Richards Co., Chicago, James McHugh Construction Co., Chicago, Corbetta Construction Co., Inc., Chicago, and Wilcox Corp., Long Island City, N. Y.

310 tons, Corps of Engineers, St. Louis; bids Oct. 1.

900 tons, Mayo Clinic Hospital, Rochester, Minn.

854 tons, reinforced concrete hangar, Trans

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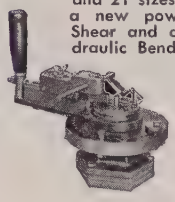
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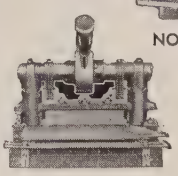
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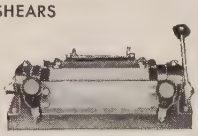
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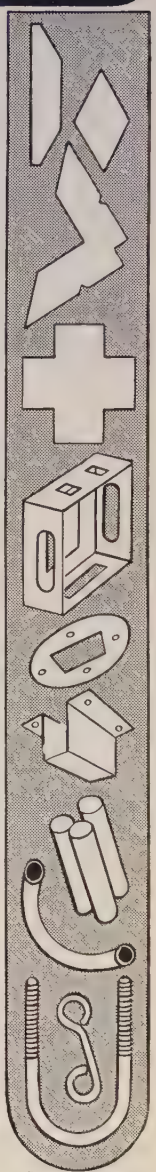
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World Airlines Inc., Municipal Airport, Chicago; bids in.
775 tons, apartment building 60th & Cottage Grove avenue, Chicago; S. N. Nielsen Co., Chicago, low on general contract.
600 tons, pumping station, Detroit.
575 tons, Bayou Boef lock, St. Mary Parish, New Orleans; bids Oct. 16, Corps of Engineers, that city.
393 tons, hospital and nurses home, Hinsdale, Ill.; bids in.
386 tons, state bridge work, Indiana county, Pennsylvania; bids Oct. 11.
364 tons, Dentistry, Medical and Pharmacy building, University of Illinois, Chicago; Joseph J. Duffy Co., Chicago, low on general contract.
192 tons, Library and Law School, University of Toledo, Toledo, O.
180 tons, state bridge work, Beaver and Lawrence counties, Pennsylvania; bids Oct. 11.
160 tons, dormitory, University of Illinois, Urbana, Ill.; John Felmley & Sons Co., Bloomington, Ill., low on general contract.
157 tons, high school, St. Charles, Ill.; Poirot Construction Co., Chicago, low on general contract.
152 tons, dormitories, University of Toledo, Toledo, O.
150 tons, bars and structurals, square span plate girder bridge and approaches, East Hartford, Conn.; bids Oct. 1, Hartford, Conn.
Unstated, junior high school, Elkhart, Ind.; bids Oct. 23.
Unstated, industrial building, McGill Mfg. Co., Valparaiso, Ind.; bids Oct. 2.
Unstated, hospital, Goshen, Ind.; bids Oct. 25.

## PLATES . . .

### PLATES PLACED

1390 tons, medium tensile, black, Navy Purchasing Office, Washington, to Kaiser Steel Corp., Oakland, Calif.
200 tons, formed plates, kiln sections, Aluminum Co. of America, Pittsburgh, to Bethlehem Steel Co.

### PLATES PENDING

1000 tons, 85 tanks, tank farm, Hammond, Ind., for Public Buildings Service, Washington; Hughes-Foulkrod Co., Philadelphia, low on general contract.
500 tons, tanks, Atlantic Refining Co., Point Breeze, Pa.; bids asked.

## RAILS, CARS . . .

### LOCOMOTIVES PLACED

Canadian Pacific, diesel-electric locomotives, including six "A" 1600-hp and six "B" 1600-hp units, to newly-established diesel plant of Canadian Locomotive Co., Kingston, Ont.; twenty 1500-hp units, six "A" and 11 "B" 1600-hp units and three road switchers, to General Motors Diesel Ltd., London, Ont.; six 1000-hp standard switchers and twelve 660-hp yard switchers, to Montreal Locomotive Works, Montreal, Que.
Missouri-Kansas-Texas, twenty 1200-hp diesel switchers, divided equally between Electro-Motive Division, General Motors Corp., La Grange, Ill., and Baldwin-Lima-Hamilton Corp., Eddystone, Pa.
Montour, four 1200-hp diesel-electric locomotive units, to Electro-Motive Division, General Motors Corp., La Grange, Ill.
New York Central, 261 diesel-electric units, placed as follows: thirty-two 1500-hp road freight "A" units, thirty-two 1500-hp road freight "B" units, forty 1200-hp yard switchers and twenty 800-hp yard switchers, to Electro-Motive Division, General Motors Corp., La Grange, Ill.; thirty-five 1600-hp road switchers and forty-three 1000-hp yard switchers, to American Locomotive Co., New York; seventeen 1200-hp yard switchers, to Fairbanks, Morse & Co., Chicago; eighteen 1200-hp yard switchers to Baldwin-Lima-Hamilton Corp., Eddystone, Pa.; also included for the New York Central subsidiary, Pittsburgh & Lake Erie, are: twelve 1500-hp road switchers and ten 1200-hp yard switchers, to Electro-Motive Division, General Motors Corp.; and two 2250-hp road passenger "A" units, to American Locomotive Co.; total cost is estimated at $35 million, with this latest purchase increasing the diesel-electric ownership of the New York Central and affiliates to 1915 units, with a total of 2,446,100 hp; deliveries are expected to begin in second quarter of next year and be completed early in 1953.
St. Louis Southwestern, four 1600-hp, diesel-electric road-switching engines, to American Locomotive-General Electric Companies, Schenectady, N. Y.
Union, eleven 1200-hp, diesel-electric switchers, to Electro-Motive Division, General Motors Corp., La Grange, Ill.

### LOCOMOTIVES PENDING

Minneapolis, St. Paul & Sault Ste. Marie, 20 diesel electric units; purchase authorized.

### RAILROAD CARS PLACED

Bessemer & Lake Erie, U. S. Steel subsidiary, 500 seventy-ton ore cars, to Greenville Steel Car Co., Greenville, Pa.
Canadian Pacific, 4250 freight cars and 50 express cars including: 1000 fifty-ton box cars, 300 fifty-ton automobile cars and 100 seventy-ton flat cars, 25 seventy-ton baggage and express cars, to Canadian Car & Foundry Ltd., Montreal, Que.; 1200 fifty-ton box cars, to own Angus shops in Montreal; 300 seventy-ton longitudinal hoppers cars and 300 seventy-ton drop-end gondolas, to Eastern Car Co., Sydney, N. S.; 400 fifty-ton freight refrigerator cars, 350 fifty-ton box cars, 300 seventy-ton covered hopper cars, and 25 fifty-ton express refrigerator cars to National Steel Car Corp., Hamilton, Ont.
Norfolk & Western, 1000 seventy-ton gondolas, to Virginia Bridge Co., Roanoke, Va.

### RAILROAD CARS PENDING

Minneapolis, St. Paul & Sault Ste. Marie, 600 freight cars; contemplated for erection in own shops.

### RAILS PENDING

Pennsylvania, 100,000 tons for 1952 requirements; bids Oct. 3; inquiries for accessories will be out later.


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of
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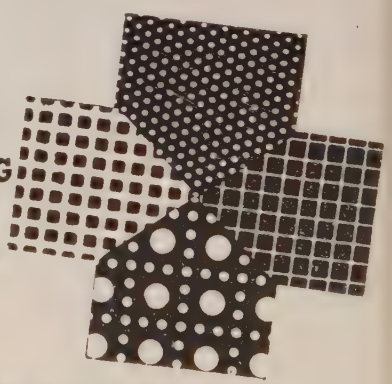

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PERFORATING COMPANY
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# Metalworking Briefs . . .

CONSTRUCTION—ENTERPRISE—ORGANIZATIONAL CHANGES

### nameled Sink Output Rising

Pittsburgh plant of Amer-an Radiator & Standard anitary Corp., that city, is eing converted to the man-facture of enameled sinks. he plant had produced ast iron plumbing fixtures ince 1880 and is the oldest f the company's 29 plants hroughout the nation. Pro-uction of cast-iron sinks ill be increased at other lants to offset conversion t the Pittsburgh plant. The enovated plant will have apacity for producing a ide variety of enameled teel products on jobbing ontracts in addition to merican Standard sinks.

### 1 Million War Contract Let

Interstate Engineering Corp., El Segundo, Calif., igned a contract with Douglas Aircraft Co. Inc., anta Monica, Calif., for roduction of fuselage sub-ssemblies for use on the Douglas AD-4 attack bomb-r. Total amount of the con-ract is in excess of $1 mil-ion.

### lans Tungsten Smelter

Black Rock Mining Corp.'s Lincoln Mines Division is lanning construction of a ungsten-concentration mill ear Hiko, Nev., at a cost f $600,000. Presently, tung-ten ore shipments are ship-ed to Bishop, Calif., for rocessing. Company offi-ials said the mill would ave a capacity of 250 tons f ore a day.

### ovequist Doubles Capacity

Lovequist Engineering o., Los Angeles, doubled roduction capacity for ma-hining of precision aircraft arts by moving into a uilding at 8737 Melrose ve., that city. The firm is ncreasing its facilities to neet heavy production chedules under contracts with major aircraft manu-facturers.

### Allied Machine Incorporates

Allied Machine Fabrica-ors Inc. was incorporated n Buffalo. Incorporators re Viola Pearl, Buffalo; Roland H. Tills, Hamburg, N. Y.; and Paul C. Stillman, Williamsville, N. Y.

### Machine Tool Output Gains

Cincinnati Milling Ma-hine Co., Cincinnati, com-leted construction of a lant near Wilmington, O., aving 110,000 square feet f factory floor space and 0,000 square feet of office pace. Output will supple-ent Cincinnati manufac-ture of grinders, lathes, drills and other products. R. S. Collier is resident manager.

### Installs Stamping Machine

BMC Mfg. Corp., Binghamton, N. Y., producer of toy automobiles, installed an 80,000 pound stamping machine which had been on order for more than a year. The machine is similar to two others the plant has for stamping out metal bodies for the toys.

### Foundries Seek Workers

Three malleable iron foundries in the Buffalo area are busier now than at any time since World War II and are searching for additional workers to meet the heavy demand for their products. They are Acme Steel & Malleable Iron Works, Lancaster Malleable & Steel Corp. and Kencroft Malleable Co. Inc.

### Convair Gets War Work

Consolidated Vultee Aircraft Corp., San Diego, Calif., was awarded a contract by the Air Force for "further development" of a new, very high performance interceptor airplane. On Sept. 5, Convair was named the winner of a contract for the development of America's first atomic-powered plane.

### Valve Maker To Build Plant

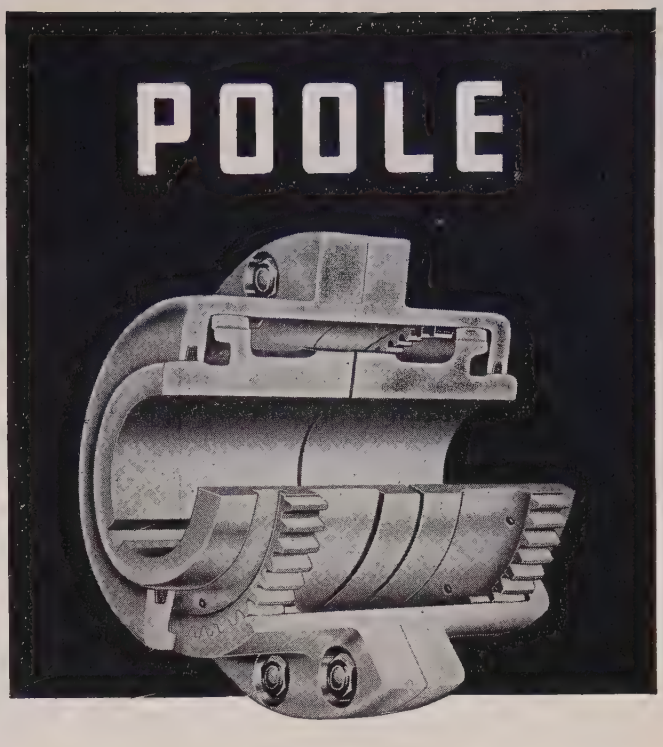
General Metals Corp., Adel Division, Burbank, Calif., was granted a certificate of necessity by Defense Production Administration for $209,122. Automatic control equipment is being installed for the production of hydraulic valves.

### Ford Stampings Output Gains

New stampings plant of Ford Motor Co. in Buffalo is increasing operations steadily. Production, now at about 40 per cent of capacity, will be stepped up materially within the next two months. The plant has run into a shortage of tool and die makers.

### Veneman Forms Vesco Inc.

C. Clarke Veneman, formerly associated with Caster and Wheel Division, Divine Bros. Co., Utica, N. Y., incorporated a materials handling agency in Charlotte, N. C., to be known as Vesco Inc. The new firm, located at 2826 Camden Rd., will represent Divine Bros. Co. (truck caster and wheel products); Arrow Products Inc. (conveyors), Grand Rapids, Mich.; Ironbound


A COPY OF CATALOG GIVING FULL DESCRIPTION AND ENGINEERING DATA SENT UPON REQUEST.

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SCREW MACHINE PRODUCTS made to your order!

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STEEL • BRASS • STAINLESS • ALUMINUM

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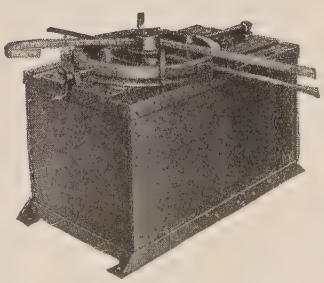
SAMUEL J. SHIMER & SONS, Inc. Milton 2, Pa.

KARDONG FOUR-WAY BENDER

For Concrete Reinforcing Bars

Model D-2



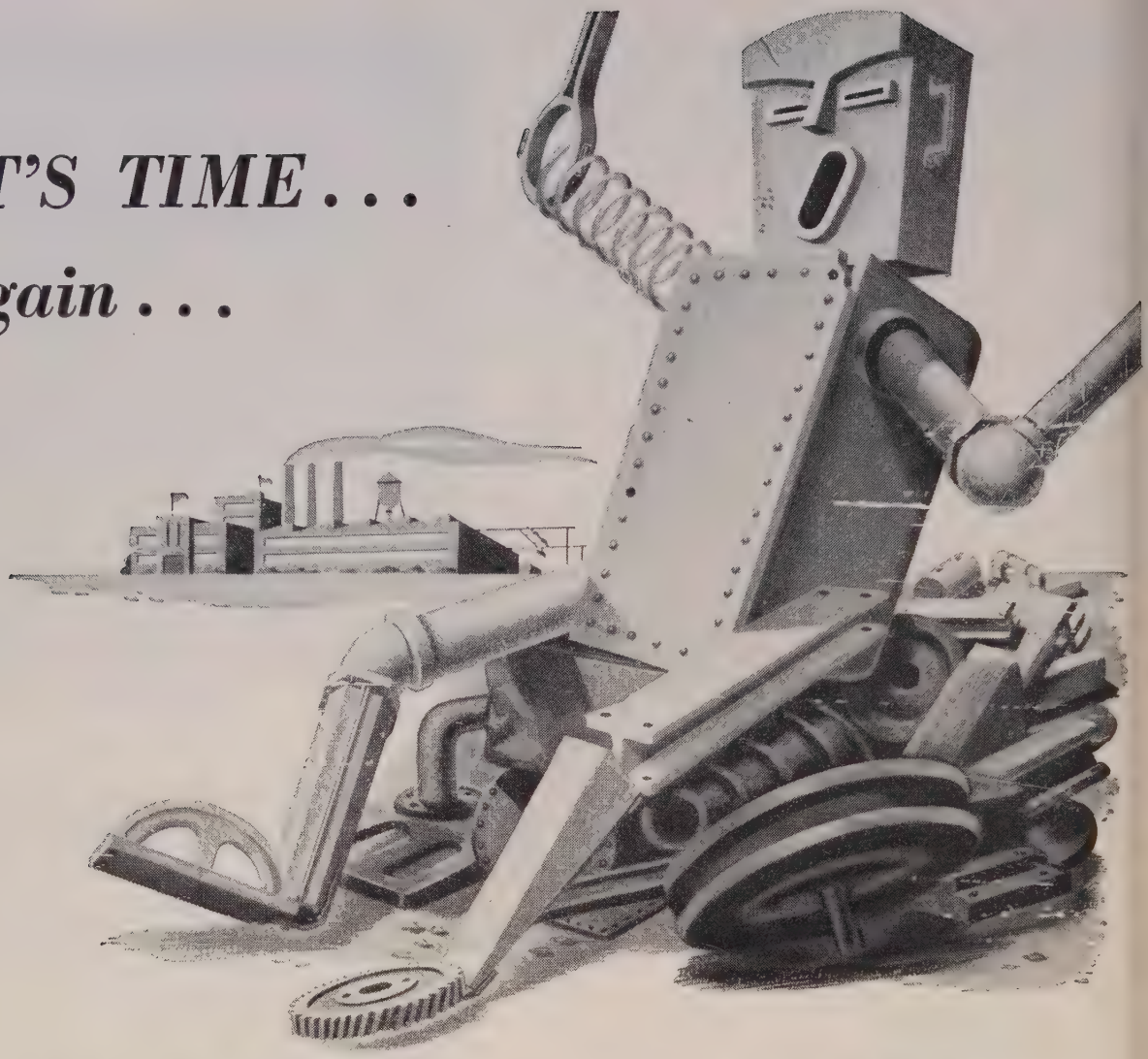
The Model D-2 Kardong Bender is a Four Direction Horizontal Bender. With this bender it is not necessary to turn bars over to make reverse or second bends on beam bars. The Model D-2 is made in two sizes, Model D-2 Standard 6-inch, which will bend bars around collars 2-inch to 6-inch, and Model D-2 Special 8-inch, which will bend bars around collars 2-inch to 8-inch. Capacity of both models, 1¼-inch Square Bars. The Model D-2 is a production bender for reinforcing steel fabricating shop. Ask for catalog of our complete line of reinforcing bar benders.

KARDONG BROTHERS, INC.

MINNEAPOLIS 13, MINN.

# *IT'S TIME . . .*

# *again . . .*



# *TO WAKE UP SCRAPPY!*

Scrap's getting scarce again . . . compared to the amounts we need . . . and it's up to *all* of us to *help* produce enough steel.

107,000,000 tons of steel is the present rate of production in 1951 . . . 119,500,000 tons is expected in 1952.

Last year, 1950, we produced 97,800,000 tons.

All that extra steel—enough to take care of *both* military and civilian needs—calls for *more scrap iron and steel.*

**Scrap Inventories Are Alarmingly Low**

While steel mills are producing at a greater rate than ever, scrap inventories have dwindled. Many mills are operating on a hand-to-mouth basis with shut-downs threatened unless we furnish more scrap.

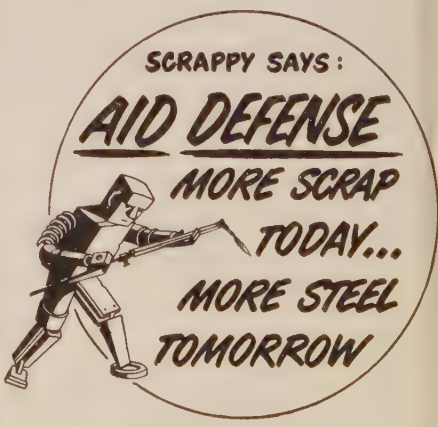
We *do* have the scrap. It's everywhere, not just in the form of *production* scrap—the "leavings" of machining, normally turned over to scrap dealers . . . but also in the form of *idle* metal: obsolete machines and tools, no-longer-usable jigs and fixtures, gears, chains, pulleys, valves, pipe, abandoned steel structures, etc.

We must have this *idle* metal to keep the furnaces running.

Please cooperate. Set up a Scrap Salvage Program in your plant—*now.* For a complete plan on "how to do it", write for booklet "Top Management: Your Program for Emergency Scrap Recovery". Address Advertising Council, 25 W. 45 Street, New York 19, N. Y.

**Why Do We Need *Scrap?***

Steel is made half from pig iron, half from scrap. With production on the increase, more scrap must be purchased. And it's up to you to "dig it out" and sell it.




NON-FERROUS SCRAP IS NEEDED, TOO!

***This advertisement is a contribution, in the national interest, by***

**STEEL**

*The Weekly Magazine of Metalworking*

A PUBLIC SERVICE PROJECT — THE ADVERTISING COUNCIL

ox & Lumber Co. (trucks nd skids), Hillside, N. J.; tratton Equipment Co. portable cranes), Cleveand; Lift-Trucks Inc. trucks, skids, etc.), Cincinati; Gerrard Steel Strapping Co. (steel strapping), hicago.

### bserves 50th Anniversary

Alvey-Ferguson Co., Oakey, Cincinnati, recently observed its fiftieth anniversary. The firm manufactures conveying systems.

### ape Maker Enlarges

Carlson & Sullivan Inc., os Angeles, is constructing 14,000 sq ft building in Monrovia, Calif. The company makes steel tape rules.

### uffalo Plant Boosts Output

American Car & Foundry o., New York, is stepping p production rapidly at its uffalo plant. Several idle uildings on the property re being reopened, new machinery is being installed nd employment is scheduled to be doubled to about 00 by the yearend.

### obinson Fan Changes Name

Robinson Fan Corp., Gilby, Calif., manufacturer of gricultural equipment and ans, has changed its name o Air-O-Fan Products Corp.

### ro Buys Pyles Industries

Aro Equipment Corp., ryan, O., purchased Pyles ndustries Inc., Detroit, and ill operate the company as subsidiary. The Pyles firm akes heavy duty pumps, etering devices, flow guns nd special equipment for andling industrial lubriants. George S. Pyles will ontinue as president of the ubsidiary.

### licrowave Tube Firm Grows

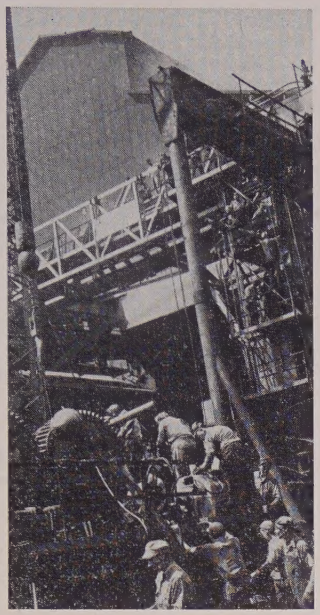
Varian Associates, San arlos, Calif., will expand esearch and production of icrowave tubes. This electronics firm was granted a 1,520,000 emergency loan by Defense Production Administration.

### PA Grants Loan to Rezolin

Rezolin Inc., Los Angeles, eceived a loan from the Defense Production Administration for construction of plant at W. 96th St., Los ngeles International Airort Industrial Tract, for anufacture of plastic tooling and plastic materials for he aircraft industry.

### letal Hose Firm Expands

Chicago Metal Hose Corp., Maywood, Ill., is building plant for the fabrication f aircraft assemblies and omponents in Memphis, enn. The company, which ill observe its 50th anniersary next year, makes exible metal hose, pipe-



GOING UP: Workmen at Republic Steel Corp.'s 15-furnace open-hearth building in Cleveland are assembling gears on an overhead crane trolley. When completed, the trolley will be raised to the crane bridge above. The work is part of Republic's improvement program to increase steel production in Cleveland

line expansion joints, bellows and thermostats, and precision aircraft assemblies. Production equipment is scheduled to move into the Memphis plant in January with full operation contemplated by Mar. 1 when 60,000 square feet will have been completed.

### Duro-Test Forms Subsidiary

Duro-Test Corp., North Bergen, N. J., manufacturer of fluorescent and incandescent lights and fixtures, organized a subsidiary, Duro-Test of California, to take over its West Coast activities.

### New Mill For Detroit Steel

Eichleay Corp., Pittsburgh, was awarded the contract for foundations, mechanical installation and necessary building alterations for the 3-stand tandem cold mill, temper mill, continuous strip pickling line, annealing furnace and miscellaneous auxiliaries at the Portsmouth plant of Detroit Steel Corp.'s plant at Portsmouth, O.

### Buys Pipe Fittings Business

Pacific Fittings Division, General Metals Corp., expanded its line of malleable iron pipe fittings through acquisition of the fittings business of Pittsburgh Valve & Fittings Corp., Barberton, O. In a previous report on this development, STEEL inadvertently omitted the word "fittings." Equipment and inventory of

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**—for cleaning, grading, straining and filtering . . . guarding and ventilating . . . accoustical treatment . . . ornamental enclosure, and related problems of product and machine design.**

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*For commercial processing,* perforations may be had with as close as ±.0005". Materials include practically all metals and sheet materials such as plastics, fabrikoids, plywood, etc.

*Ornamental grilles*—modern and classical patterns—are perforated in any currently available metal—finely finished.

Perforated sheets may be furnished rolled, formed, sheared, welded, brazed or otherwise fabricated to your specifications.




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LOW COST OF CHASERS
LESS DOWNTIME. 100% DEPENDABILITY
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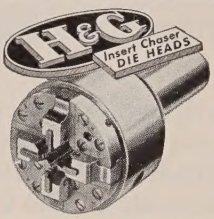


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Pacific Coast: A. C. Behringer, 334 N. San Pedro St., Los Angeles. Canada: F.F. Barber Machinery Co., Toronto.

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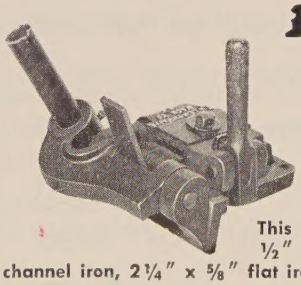
GASOLINE • DIESEL
ELECTRIC • STEAM
25 TO 40 TON CAPACITY

THE OHIO LOCOMOTIVE CRANE CO.
BUCYRUS, OHIO

T. H. LEWTHWAITE MACHINE CO.
Hand Operated



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PUNCHES
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For 63 years we have been designing and manufacturing tools for and selling tools to the metal-working trades.

This sturdy bender will bend up to ½" square or round iron, 2" x ½" channel iron, 2¼" x ⅝" flat iron cold.

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310 EAST 47TH STREET NEW YORK 17, N. Y.

# *"One of the surest ways to make money is to save money..."*

**CAPTAIN EDDIE RICKENBACKER**

President and General Manager
Eastern Air Lines, Inc.

***"... and the purchase of U. S. Savings Bonds through the Payroll Savings Plan is an easy way to save. It is good for the community. It is good for you because it means money available for a rainy day. Through the thousands of years that men have roamed the globe there have always been rainy days."***

A vigorous exponent of thrift, Captain Eddie Rickenbacker made the Payroll Savings Plan available to his employees of Eastern Air Lines some years ago. From time to time, in personally dictated letters addressed "To All Members of Eastern Air Lines Family", he points out the individual and national advantages of the Payroll Savings Plan, and urges members of Eastern Air Lines Family "... to sign up on the Automatic Payroll Savings Plan. In years to come I am sure you will be mighty glad you did."

How about *your* Payroll Savings Plan? What have you done since Savings Bonds became Defense Bonds? What is your percentage of employee participation?

From coast to coast, companies large and small are installing the Payroll Savings Plan or revitalizing their present plans through person-to-person canvasses which put a Payroll Savings Application Blank in the hands of every employee.

Note the results of some recent person-to-person canvasses. Think what management efforts like this mean to the Defense effort. Then phone, wire or write to Savings Bond Division, U. S. Treasury Department, Suite 700 Washington Building, Washington, D. C. Your State Director will be glad to help you put in a Payroll Plan or show you how to conduct a person-to-person canvass.

**Results of recent person-to-person canvasses to increase participation in Payroll Savings**

| | |
|---|---|
| 39 companies . . . total employees | 487,347* |
| Employees on plan before canvass | 81,481 |
| Employees on plan after canvass | 329,942 |
| % of participation before canvass | 16.8% |
| % of participation after canvass | 67.7% |
| **New savers added to plan** | **248,461** |

Based on National averages, employees in this group of companies are saving more than $7,000,000 every month in United States Defense Bonds.

**Includes 62,070 employees of six companies which did not have plan before canvass.*

*The U. S. Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and*

**STEEL**

*The Weekly Magazine of Metalworking*

Pittsburgh Valve & Fittings Corp. is being transferred to Pacific Fittings' plants in Los Angeles and San Francisco. This transaction, involving an expenditure by General Metals Corp. of about $500,000, will result in the largest integrated manufacture of a complete line of malleable fittings on the Pacific Coast.

**Western Brass Builds Plant**

Western Brass Works, San Pedro, Calif., is constructing a plant at 1301 Sepulveda St. for production of brass castings, bronze bushings and bearings. Completion is scheduled by April.

**Collins Radio Co. Enlarges**

Collins Radio Co., Cedar Rapids, Iowa, will construct a $250,000 building addition to its Western Division, Burbank, Calif., plant.

**New Plant For Reserve**

Reserve Supply Co., Chicago, is building a manufacturing plant near Franklin Park, Ill., at an estimated cost of $500,000.

**Allis-Chalmers Names Agent**

Columbia Electric Supply Co. Inc., Washington, was named a distributor for motors produced by Allis-Chalmers Mfg. Co., Milwaukee.

**Moves San Francisco Office**

Whitney Chain Co., Hartford, Conn., moved its San Francisco district office to larger quarters at 70 Dorman Ave. The office is under the direction of George F. Haag, district manager.

**Librascope Builds Addition**

Librascope Inc., Glendale, Calif., is adding facilities costing $250,000 to its electronic development and production plant.

**Pastushin Changes Name**

Pastushin Aviation Corp. is the new name of Vic Pastushin Industries Inc., Los Angeles. This aircraft-components manufacturing firm is in full production of external fuel tanks for Air Force jet fighters at its Los Angeles plant and has under way other important defense projects. Ownership and management of the firm remain the same.

**Sales Executives Move**

Frank B. Molen, midwest technical sales representative for molding powders and resins manufactured by Naugatuck Chemical Division, United States Rubber Co., moved his headquarters from the division's plant in Naugatuck, Conn., to the division's branch office at 247 E. Exchange St., Akron, O. Richard H. Malamphy, who holds a similar position along the eastern seaboard, established headquarters in the division's branch office at 254 Fourth Ave., New York.

**Hamilton Buys Case Maker**

Hamilton Watch Co., Lancaster, Pa., purchased all outstanding stock of Ralph W. Biggs & Co., Stamford, Conn. The latter firm, a producer of watch cases, will be continued as a wholly-owned subsidiary.

**Terminal To Be Demolished**

New York Central Railroad, preparing for complete dieselization of its St. Lawrence Division, is constructing facilities for servicing diesel locomotives at Watertown, N. Y. When they are completed, Central plans to abandon a large part of its Pine street yard at Watertown and to demolish its steam engine terminal and coal dock.

**Sivley Iron Works Moves**

Sivley Iron Works Inc. moved its offices to 1921 First Ave. S., Birmingham 3.

TOPPER: Nails pour freely into the tops of new fiber boxes being used for packaging them at Columbia Steel Co.'s Pittsburg, Calif., plant. The box top serves as a nail carrier for the carpenter. Fibre boxes have other advantages over the familiar wooden kegs: 30 per cent saving in storage space; easier and safer handling; savings in shipping costs; and the replaceable tops protect nails against dust and corrosion


FORGINGS
HAMMERED STEEL FORGINGS
up to 6000 lbs. each
ALL TYPES
Smooth Forged Finished — Rough Turned Hollow Bored
and Heat Treated to Specifications
CRANKSHAFTS, CONNECTING RODS, SHAFTING
Roll—Gear Blanks—Pinions and Miscellaneous Forgings
BAY CITY FORGE CO.
ERIE, PA.
Over a Quarter of a Century of Dependable Service and Quality Products

The Cleveland Steel Tool Co.
• PUNCHES • DIES • CHISELS • RIVET SETS •
IF IT'S RIVETED YOU KNOW IT'S SAFE
WE FEATURE SPECIAL PUNCHES & DIES
660 E. 82nd ST., CLEVELAND, O.

PRODUCERS OF Hot Rolled ELECTRIC FURNACE QUALITY
BARS ★ SMALL SHAPES ★ STRIP
BOIARDI STEEL CORPORATION
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To reach the metalworking market. Just list the materials or machines you have for sale in the "Equipment—Materials" section and STEEL will do the rest. It is read weekly by specifiers and buyers in the plants which do more than 92% of the metalworking industry's business. For rates and further details, write STEEL, Penton Building, Cleveland 13, Ohio.

# MATERIALS--USED EQUIPMENT

## RAILROAD EQUIPMENT—*FOR SALE*

### STANDARD GAUGE FREIGHT CARS

Box, Single Sheathed, 50-Ton
Cabooses, Eight Wheel, Cupola Type
Flats, 50-Ton, Steel Underframe, 40'0"
Gondolas, Composite or All Steel, 50-Ton and 70-Ton
Hoppers, Covered, All-Steel, 50-Ton & 70-Ton
Hoppers, Twin, All-Steel, 50-Ton, Cross Dump
Hoppers, All-Steel, 70-Ton, Cross Dump
Tank, 8,000-Gallon, Class II

### EXTRA LONG FLAT CARS

40 & 50-Ton Capacity, Length 70' and 74'

### STANDARD GAUGE DUMP CARS

Side Dump, 16-Yd., 30-Ton, Lift Door
Side Dump, 20-Yd., 40-Ton, Lift Door
End Dump, 20-Yd., 50-Ton, Drop Door
End Dump, 10-Yd., 30-Ton, Lift Door

### STANDARD GAUGE LOCOMOTIVES

**Two Plymouth Diesel-Electric, 45-Ton, Standard Gauge, Type 0-4-4-0, Built 1942**

Gasoline—10-Ton to 25-Ton
Diesel-Mechanical—8-Ton to 30-Ton
Gasoline-Electric—35-Ton
Propane-Electric—70-Ton

**One Plymouth Model KC Flexomotive, 65-Ton, Standard Gauge, Type 0-6-0, Built 1940**

***Send us your inquiries*** **We Buy Freight Cars for Dismantling** ***Send us your offerings***

### IRON & STEEL PRODUCTS, INC.

REPAIR PARTS For All Types of Freight Cars

***General Office***
**13462 S. Brainard Ave.**
**Chicago 33, Illinois**
**Phone: BAyport 1-3456**

***New York Office***
**50-D. Church Street**
**New York 7, N. Y.**
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STORAGE TANKS
6,000 Gallon
8,000 Gallon
10,000 Gallon

***"ANYTHING containing IRON or STEEL"***

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STEEL PLATE
STRUCTURALS, PIPE,
TUBING, WIRE ROPE,
FERROUS AND NON-FERROUS SCRAP

***BOUGHT-SOLD LIQUIDATED***

**DULIEN STEEL PRODUCTS, Inc.**
of Washington
9265 E. Marginal Way • Seattle 8, Wash. • LAnder 6000

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### For Sale

| | | | |
|---|---|---|---|
| **COLD FINISHED BARS** | | | |
| 21/32" | Rd. 10/12' | 51100 | 14250 # |
| 1-13/16" | Rd. 10/12' | 52100 | 6500 |
| 2-1/16" | Rd. 10/12' | B1112 | 2650 |
| 27/32" | Rd. 10/12' | 52100 | 700 |
| **HOT ROLLED BARS** | | | |
| 1-3/16" | Rd. 10/12' | 52100 | 7000 # |
| 3½" | Rd. 10/12' | 52100 | 3400 |
| 3¼" | Rd. 10/12' | 4320 | 1500 |
| 5" | Rd. 10/12' | 4320 | 1100 |
| **CORE RODS** | | | |
| 5/16" Rd. | H.R. | 14' Len. | 25000 # |
| 7/16" Rd. | H.R. | 14' Len. | 8000 |

SEABOARD STEEL CO., INC. New Haven, Conn.

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### WANTED BRIDGE CRANES

**ARNOLD HUGHES COMPANY**
765 Penobscot Bldg. Detroit, Mich.
WOodward 7-1894

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### BRIDGE CRANES

**ARNOLD HUGHES COMPANY**
765 Penobscot Bldg. Detroit, Mich.
WOodward 1-1894

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### PRESSES—IMMEDIATE DELIVERY

1800 Ton R.D. Wood Hydr. #H-226 22" opng. 3000# p.s.i. 7' 6" x 18' platens; 2—58" x 13' x 2½" extra drilled platens. Together with 300 KW Girdler Hi Frequency 113 tons, Single opng; 54" x 22" platens; also extra drilled platens; Together with 16 KW Girdler H.F. 5 opening Becker Von Huellen Hot Plate Plywood Press.

ALL IN WORKING CONDITION.

**PLUSHWOOD INDUSTRIES, OSHKOSH, WIS.**

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